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A case study of the education process for diabetes self-management in a nurse-led centre in Hong Kong

by

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ABSTRACT
FACULTY OF MEDICINE, HEALTH AND BIOLOGICAL SCIENCES
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A CASE STUDY OF THE EDUCATION PROCESS FOR DIABETES SELF-MANAGEMENT IN A NURSE-LED CENTRE IN HONG KONG

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Diabetes education is the corner-stone of diabetes care, but there has been limited investigation of the quality and characteristics of the diabetes education process in Hong Kong. This study aims to evaluate this process by adopting an embedded, single-case study design with multiple triangulation to examine a case – the education process for diabetes self-management in nurse-patient encounters. A nurse-led centre, five diabetes nurses and 20 patients were purposively sampled. Building on the existing knowledge of health promotion and provider-patient interaction in education encounters, a theoretical framework was constructed to guide the data collection and analysis. Data collection methods included: (1) audio-taping of nurse-patient interaction, (2) diabetes-specific patient outcome measures (the Chinese versions of Diabetes Empowerment Scale (Shiu et al 2003) and Health Care Climate Questionnaire (Lee and Shiu 2004), perceived adequacy of diabetes knowledge, Glycosated haemoglobin readings retrieved from patient records), (3) in-depth interviews with patients and nurses, and (4) analysis of nursing documentation. The Education Strategy Analysis Scheme was developed and used alongside the Roter Interaction Analysis Scheme (www.RIAS.org 2002) to analyse 69 audio-taped nurse-patient interactions collected over six months. Pattern matching logic confirmed that the preventive model of education was in operation. Two overarching themes of "control" and "concern" explain what happened in the education process, with nurses controlling and showing concern and patients submitting to the control and expecting genuine concern. The education process occurred within a relational context characterised by Chinese culture and the acute-care culture. Patients perceived self-management to be a part of their total life context and a positive nurse-patient relationship to motivate self-management. Patient outcomes were increased knowledge and improved glycaemic control, but no change in psychosocial self-efficacy after the education process. Findings highlight the positive aspects of nurses' ability in expressing culturally appropriate concern and expertise in information-giving. The high relevance of the control/concern model to the cultural context is analysed, and one particular value of this model is its implications for a re-conceptualisation of the Western model of self-empowerment in a Chinese context where Confucianism has a strong influence on moral code based on human relations. Findings also suggest that nurses were constrained by their internal (e.g., ideology of diabetes education) and external (e.g., the acute-care culture of the healthcare system) environment to adhere to the preventive model, and therefore making a paradigm shift to the self-empowerment model would require empowering nurses to overcome these constraints. Two main recommendations are made: that nurses should be empowered through the development of their professional capacity and that environments supportive of self-empowerment should be created. Implications for future research include: further investigation of the features of a model of best nursing practice for self-management in an Eastern cultural context and how equal partnership could be facilitated in such a context.

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List of Abbreviations

A number of common abbreviations are used throughout the thesis. A list of these abbreviations and their definitions is given below.

Abbreviation	**Definition**
BG	Blood glucose
BGSM	Blood glucose self-monitoring
C-DES	Chinese version of the Diabetes Empowerment Scale
C-HCCQ	Chinese version of the Health Care Climate Questionnaire
ED	Educational model
EM	Self-empowerment model
ESAS	Education Strategy Analysis Scheme
HbA1c	Glycosated haemoglobin
HK	Hong Kong
OHA	Oral hypoglycaemic agent
PR	Preventive model
RCT	Randomised control trial
RIAS	Roter Interaction Analysis Scheme
UK	United Kingdom
UKPDS	United Kingdom Prospective Diabetes Study
US	United States
WHO	World Health Organisation

Chapter One – Introduction

1.1 Background

The epidemiological transition from acute to chronic diseases is a major challenge to healthcare systems, and offers a strategic opportunity for reorienting such systems towards the health promotion criteria of equity, empowerment and community development (Sindall 2001). One of the main suggested emphases of healthcare systems to date has been the empowerment of people who are affected by chronic disease to practise self-management (World Health Organisation 2003).

Hong Kong (HK) is a post-industrial city that has experienced fast economic growth and urbanisation in the past four decades. The health status of HK citizens is comparable to that of first-world countries, including the exhibition of a range of chronic diseases. Diabetes is one of the main public health problems in HK (Chan and Cockram 1997). Diabetes prevalence is ever increasing, with 8% of the population suffering from the condition in 1995 (Janus et al 1996) and this figure rising to 10% in 2000 (Chan 2000). The prevalence is more intense amongst elders with one in every four citizens over 65 years of age being affected (Lam et al 2000). Diabetes has consistently been the seventh or eighth leading cause of death in the past decade (Department of Health HK 2005), and comprises 40% of medical ward admissions (Chau et al 2005). Diabetes is also a predictor of cardiac and cerebral vascular diseases (Janus et al 1996), which have been the top two leading causes of death in the past two decades (Department of Health HK 2005).

Patients with diabetes take responsibility for up to 95% of the daily decisions about their care (Humphry et al 1997), and the need for patients to engage actively in self-management has given rise to a global emphasis on patient education as a central concern in diabetes care and research in the last 50 years (Cramer 2004). It has been recognised that diabetes education for self-management is the corner-stone of secondary and tertiary prevention (WHO 1998d). Amongst health professionals, it is nurses who have taken up the main role in providing diabetes education. In HK, diabetes nurses play the role of diabetes educators.

1.2 The research problem

The literature identifies that the education role of nurses has a long history with origins in the old public health movement of the 19th century (Ashton 1990). Although theoretical models of health education and health promotion have evolved from a narrow focus on lifestyle change to encompass a broader picture of creating supportive environments and strengthening the personal capacity to make healthy choices (WHO 1986), nurses have tended to stick to the preventive model of health education (Whitehead 2001). In applying the conceptualisation of the new public health (Kickbusch 2003), nurse-patient encounters in diabetes education should focus on empowerment to enable patients to gain a sense of control over their life and their condition. However, no published research has investigated the influence of theoretical models on diabetes education practice or issues that might be influential in achieving a paradigm shift.

Reviewing diabetes education research within the larger context of patient education, Roter et al (2001) consider it to have taken a lead in adopting empowerment in interventions since the 1990s. However, the education process of an empowerment approach has received limited research attention (Adolfsson et al 2004). Indeed, a literature review on diabetes education research (Chapter Three) shows that outcome studies have been the main focus, with studies on the process of education only slowly increasing in number in the past two decades. Furthermore, the process studies that have emerged mainly focus on the communication skills of health providers (Hampson et al 1996), with little investigation of education strategies and the theoretical underpinnings of the education practice. This omission is in part due to a lack of coding templates for education strategies (Mead and Bower 2000). Moreover, there is a paucity of studies on patient contributions in education encounters (Kettunen et al 2002) and on patient perspectives on the achieved outcomes (Elasy et al 2001). Another area that has been inadequately researched is cultural characteristics of non-white populations or those that do not live in the West (Brown et al 2002), which has led to the serious under-reporting of the influence of cultural characteristics on the education process. It is notable that non-white populations such as the Chinese bear a disproportionate burden of diabetes (Wild et al 2004).

The diabetes education process has been described as a "black box" (Elasy et al 2001). To date, no published study, either internationally or in HK, has investigated the process of diabetes education in a natural clinical setting, apart from a few studies on the communication skills. Filling this gap may better enable nurses and other health professionals to advance the practice and theory in diabetes education.

1.3 Research question, aim and objectives

The research question examines what happens in the education process for diabetes self-management within the context of nurse-patient encounters. This study aims to evaluate the education process for diabetes self-management in a nurse-led education centre in HK, and adopts an embedded case study design with multiple sources of evidence. This study has the four following objectives.

1. To examine the communication styles of nurses and patients and the education strategies that are adopted by nurses in the education process for diabetes self-management.
2. To investigate the impact of the education process on patient outcomes.

3. To examine patients' perceptions of the education process.
4. To examine nurses' perceptions of the education process and its theoretical underpinnings.

1.4 Operational definitions

The following definitions have been selected or further developed from the literature as operational definitions for this study.

> "*Health promotion* is the process of enabling people to increase control over, and to improve, their health" (WHO 1986, pi).
>
> "In health promotion, *empowerment* is a process through which people gain greater control over decisions and actions affecting their health" (WHO 1998c, p6).
>
> "*Health education* is any intentional activity designed to achieve health- or illness-related learning, i.e., some relatively permanent change in an individual's capability or disposition. Effective health education may, thus, produce changes in knowledge and understanding or ways of thinking; it may influence or clarify values; it may facilitate the acquisition of skills; it may even effect changes in behaviour or lifestyle" (Tones and Tilford, 2001, p30).
>
> "*Nurses' education practice* is defined as nurses' involvement in interactions with individual patients/clients which have an obvious health- and education-related content . . . These interactions can be conducted according to either a traditional, prescriptive, behaviour change approach, or in line with an empowerment model of health education and fostering the patient's/client's self-esteem and self-efficacy" (Latter 1998, p13).
>
> "*Ideology*, in its simplest form, describes the complex of values and associated beliefs which provide people with meaning in their personal and professional lives and which, by way of example, would influence their preference for one or other 'model' of health education and their preferred way of working" (Tones and Tilford 2001, p25).

This writer operationally defines two concepts that draw on the conceptualisation of Tones and Tilford (2001) of health education. This conceptualisation is perceived to be most appropriate for this study, because the technical definition holds true whatever the theoretical model adopted by the nurse participants.

Diabetes education is defined as any intentional activity designed to achieve diabetes-related learning, that is, a relatively permanent change in a patient's capability or disposition for diabetes self-management. Effective diabetes education may therefore produce changes in knowledge and understanding or ways of thinking, influence or clarify values, facilitate the acquisition of skills, or even effect changes in self-management behaviour or lifestyle.

Education strategies are defined as the courses of action adopted by nurses during the education process with the aim of achieving diabetes-related learning.

To differentiate education strategies from communication skills in diabetes education, this writer operationally defines communication skills following the conventions used in most communication interventions (Anderson and Sharpe 1991).

Communication skills are defined as interaction skills, which include two main forms of communication behaviour: task-focused (for example, information giving) and socioemotional (for example, empathy).

This writer operationally defines another three concepts that draw on Latter's (1998) conceptualisation of nurses' education practice. This conceptualisation is not restricted to the theoretical approach adopted by nurse participants, but also enables the education process to be explored at the level of interaction.

Nurses' diabetes education practice is defines as nurses' involvement in interactions with diabetic patients that have an obvious education-related content. These interactions can be conducted according to either a traditional, prescriptive, behaviour-change approach, or in line with an empowerment model of health education and the fostering of a patient's self-esteem and self-efficacy.

The education process for diabetes self-management is defined as the interaction process between a nurse and a patient when they meet for diabetes education.

Process characteristics of the education process are defined as elements that influence learning, and include the communication skills and education strategies employed in the interaction process.

1.5 Overview of the thesis

This study aims to evaluate the education process for diabetes self-management within the context of a nurse-led diabetes education centre in HK. Chapter One outlines the research problem, the research aim and operational definitions, and gives an overview of the study.

Chapters Two and Three give a review of the literature. Chapter Two aims to analyse the historical development of health education and health promotion with a view to suggesting an appropriate theoretical model of diabetes education for nursing practice. It is concluded that health promotion emerged from health education and evolved as the "military" wing of the new public health. A tripartite conceptual analysis of the theoretical approaches to health promotion illustrates that the empowerment model matches the ideological commitments of the WHO on health and health promotion (Tones and Tilford 2001). The self-empowerment model of health education, which is one of the two components of the empowerment model, has been observed to be a micro-level of health promotion, and is recommended as the most appropriate theoretical model for the health education practice of nurses.

Chapter Three aims to deduce what is known and what is not well understood and the methodological issues of research into diabetes education by reviewing the literature that especially focuses on provider-patient interaction. It is concluded that outcome studies have been the trend, with a few process studies appearing since the 1990s. Process studies mainly investigate the communication styles of health providers, but inadequately examine the education strategies. Patients' perceptions of the link between process characteristics and outcomes achieved is not well understood. In addition, critics have commented on the atheoretical nature of these studies. Furthermore, all of these studies have been conducted in the West, which has led to the serious under-reporting of the influence of cultural characteristics on education interventions.

Chapter Four describes the theoretical framework and the methodology adopted in this study to investigate a case – the education process for diabetes self-management in nurse-patient encounters. This chapter explains the theoretical framework, which has been developed from the literature. Three templates and their propositions are derived accordingly as a guide for the data collection and analysis. Chapter Four provides an explanation of the methodology and justifies and discusses the use of an embedded, single-case design and the case study methods, which include four sub-units of analysis, data collection strategies, pattern-matching logic, multiple triangulation and rigor of the study. In addition, the chapter describes the development of an analytical template, the Education Strategy Analysis Scheme (ESAS), which aims to discern the use of education strategies in the education process.

Chapters Five and Six present the study findings according to the four sub-units of analysis. Chapter Five starts with the contextual background within which this study is situated before reporting the findings of the first two sub-units of analysis, which comprise findings on the communication styles of nurses and patients, the education strategies adopted by nurses, and data on the impact of the education process on patient outcomes.

Chapter Six presents findings from the last two sub-units of analysis, which include patients' perceptions of the education process and nurses' perceptions of the education process and its theoretical underpinnings. Patients' perceptions of the influence of the education process on the outcome achieved are also reported. Finally, the findings from the four sub-units are merged to substantiate an empirically based pattern of practice utilising the propositions derived from the theoretical framework. This empirical pattern is then compared with the three templates derived from the theoretical framework using pattern-matching logic. It is concluded that the empirical pattern supports a preventive model as the theory for practice.

Chapter Seven discusses the findings and draws the conclusions. The chapter starts with a discussion of the overarching themes of control and concern. Grounded in the empirical findings, the theoretical framework constructed at the outset of the study is revised to understand the diabetes education process of the case study centre in HK. Three issues of significance in making a paradigm shift towards empowerment are identified for discussion. The discussion of the overarching themes and the issues draws on the cultural issues uncovered in this study, which include Chinese culture and the acute-care culture. Recommendations for improving nursing practice in diabetes education are presented, and implications for further research and theory development in diabetes education and nursing practice are discussed.

1.6 The significance of this study

This is the first study to examine directly the education process in a natural setting. The case study site was purposively sampled to recruit an exemplar education centre in HK in terms of its reputation in diabetes education and espousal of the philosophy of empowerment. Multiple triangulation enables the examination of the evidence from multiple sources and multiple methods of data collection, which provides a holistic description of the case. The development of a theoretical framework, the Tripartite Conceptual Analysis on the Theoretical Models of Diabetes Education, allows the analytical generalisation of the study findings to the body of knowledge on diabetes education encounters and theoretical models of health education. The development of the ESAS allows the examination of a possible range of strategies for education encounters, which has never before been attempted. The interplay between process characteristics and achieved outcomes is examined from the patient perspective, which adds to the understanding of the role of the nurse-patient relationship in diabetes education. The findings reveal the cultural issues that influence education encounters in the case study centre and the issues of significance in making a paradigm shift towards empowerment. In short, the findings contribute to the understanding of the education process for diabetes self-management within a Chinese cultural context and a healthcare context with a heavy British slant.

Chapter Two – Literature Review: Theoretical

2.1 Introduction

This study aims to evaluate the education process for diabetes self-management in a nurse-led education centre in HK. Diabetes education belongs to the arena of health education (van Dam et al 2003). Before the first WHO conference on health promotion (WHO 1986), the two concepts of health education and health promotion had caused much confusion (Ewles and Simnett 2002), but it has since been clarified that the two concepts are not synonymous but symbiotic (Tones and Tilford 2001). However, a tension has emerged in the nursing literature in the past two decades between the concepts (Whitehead 2004). It has been observed that anything related to health education is regarded as victim blaming, whereas that which is related to health promotion is seen as desirable. Understanding this tension has great bearing for the practice and development of diabetes education in nursing, and therefore this thesis starts with a review of the theoretical literature with the aim of identifying the theoretical basis for health education in general, and diabetes education in particular.

In the first part of this chapter (2.2), this writer attempts to establish the context and theoretical basis for this study by tracing the historical development and evolution of health promotion from two categories of movement, two public health movements and a health promotion movement. The discussion of the former draws mainly on activities in the United Kingdom (UK), whereas the latter is extracted mainly from the publications of the WHO supplemented with other related literature. This review contributes to the formulation of a rationale for selecting a theoretical framework for furthering nursing practice in diabetes education. It is important to ensure that the selected framework is not simply ideologically sound, but also operationally pragmatic, and therefore in the second part of this chapter (2.3), this writer further refines the identified rationale by incorporating lessons that have been learned from the evolution of health promotion practices in nursing since the new public health era.

An evaluation of the current models of health promotion with their rationale is given (2.4), and particular attention is paid to the applicability of the model to nurse-patient interaction in education encounters. The ideological and technical aspects of the self-empowerment model, which is the model of choice for health education practice, is discussed. The interface between self-empowerment and self-management is discussed (2.5). In the last part of the chapter (2.6), a critique of the application of the empowerment approach in diabetes education is given.

2.2 The origins and evolution of health education and health promotion

2.2.1 Two public health movements in the UK

The literature clearly demonstrates that the development of health education and health promotion arose from two related categories of movements, the first of which is the old and new public health movements. MacDonald and Bunton (2002, p10) state that "health promotion did not grow in a vacuum but developed largely out of health education and in tandem with the development of the new public health movement".

Ashton (1990) provides a useful mapping of public health developments in the UK, breaking them down into four eras from 1840 to 1974 and beyond. The Victorian (old) public health movement comprises the first era, and the new public health movement marks the fourth. Ashton's mapping includes information about the way in which health and illness and its maintenance or prevention was considered in different eras. A detailed review of the development of the old and new movements is beyond the scope of this thesis, but details can be found in the work of MacDonald and Bunton (2002), McDonald (1998), Kendall (1993), Ashton (1990) and McKeown (1976).

Table 1 sums up five major areas of analysis by the four eras described by Ashton (1990). The five major areas of analysis include the dominant concept of health, the dominant determinants of health, the type of interventions, major contributors, and limitations.

The concept of health in the first era, which is known as the Sanitation Era (Victorian age, 1840-1880), was mainly that of the interaction between the environment and human beings. In the early twentieth century (the second era, the Era of Personal Prevention, 1881-1930) a broad conceptualisation of health that acknowledged its physical, social and environmental determinants appeared to have gained some degree of acceptance. However, this conceptualisation gradually gave way to a narrow focus in the third era (the Treatment Era, 1931-1973), and a medical model became the dominant model of health, a model that lingers on in the contemporary era (Kendall 1998). This model views health as the "absence of disease" and as "functional fitness" (Jones 2000b, p30).

Starting from the 1970s, the Victorian conceptualisation of health resurged and developed into a social model of health, which put much emphasis on the reduction of inequalities in health and creating equity. Since 1974 (the fourth era, the New Public Health Era) and greater focus on the ecological idea, which involves a holistic understanding of humans, their lifestyles, habitats and environments in explaining health and illness, the social model of health has gained wider acceptance (Ashton 1990).

Table 1

The development of public health in the UK

Era	Dominant Concept of Health	Dominant Determinants of Health	Types of Interventions	Major Contributors	Limitations
1st The Sanitation Era 1840-1880 (Victorian Public Health Movement)	Sanitary idea	Sanitation	Health education: critical health education, information-giving; legislation: social reform, public health policy	Civilian; government; nursing: very minimal	Mechanic and ecologically unsound
2nd The Era of Personal Prevention 1881-1930	Personal prevention (medical model)	Healthy lifestyles	Health education: healthy lifestyle, medical model; mass immunisation programmes	Medical officers of health; nursing: health visitors	Individualistic approach; victim blaming
3rd The Treatment Era 1931-1973	Absence of disease (medical model)	Biological causes of disease	Treatment of disease; health education: healthy lifestyle, medical model, education model	Doctors; nurses as health educators	Reductionist; de-powering; victim blaming

4th The Era of the New Public Health 1974 onward	Ecological idea (social model)	Psychological social, environmental and political factors influencing health	Healthy public policy: addressing inequalities in health, creating supportive environments; Health education as a component of health promotion; health promotion involves empowerment	Environmentalists; socio-psychologists; socio-epidemiologists; WHO; Various health and non health sectors; nursing: health educators	Health: whose business and who takes the lead?

Health education grew out of the developments of the Victorian Movement. The technical definition of Tones and Tilford (2001) of health education on what is involved in the process of health education is adopted in this thesis (see Chapter One, Operational Definitions). Although this definition was suggested a century after the Victorian Movement, the technical aspects of health education that are outlined apply well today and in the past. In addition, it also defines the task of evaluating health education as the determination of the extent to which "health or illness related learning had in fact taken place" (Tones and Tilford 1994, p11).

Two approaches to health education existed in the Victorian Movement. The first approach resembled the use of critical health education, which means the stimulation of the critical understanding of the root causes of ill health (Tones and Green 2004). The second approach put the emphasis on teaching individuals about a healthy lifestyle for the promotion of public health.

Personal prevention and medicine became imperative in the second and third era, and although the imperative was accompanied by an increasing popularity of offering free choice, health education further developed into a more individualistic approach and became a subordinate of preventive medicine. This approach is commonly referred as a medical approach or a preventive model of health education (Tones and Green 2004, Ewles and Simnett 2002).

The narrowly focused lifestyle approach to health promotion fell into disrepute in the early 1980s, and its limitations raised the ethical issue of victim blaming.

> "Targeting individual lifestyle can come close to 'blaming the victims' if people are in a position where change is very difficult or even impossible, and yet are made to feel guilty for not making a change" (Jones 2000b, p42).

Victim blaming consists of

> "ignoring the broader social, material, economic and cultural factors determining individual behaviour and placing the entire burden of responsibility for action on individuals (victims) themselves while, at the same time, not recognising the limits to the individual's power to act and, on occasions, denying the individual the opportunity to take responsibility when he or she actually has some scope for making choices" (Tones and Tilford 2001, p38).

It is not working with individuals, such as the health education or diabetes education practice of nurses, that contributes to victim blaming, but rather "the locus of responsibility and the extent to which opportunities are provided for empowerment" (Tones and Tilford 2001, p38). Indeed, the sick role itself is self-conflicting in that patients are asked to comply steadfastly with health professionals' advice on the one hand, but to take sole responsibility for their health by making decisions and changing their behaviour on the other.

After the Second World War, it was gradually recognised that the medical model of health education had several limitations, and also that the treatment of the environment and the planet was at fault. This recognition, together with the initiatives of the WHO, gave rise to the new public health movement and the current concept of health promotion.

Nurses came onto the historical scene of public health development from the second era onwards (Ashton 1990). It is noteworthy that nursing has not contributed significantly to the evolution of public health. Nursing involvement has mainly been as educators, providing education on personal prevention that focuses on behaviour changes of individuals (MacDonald and Bunton 2002). This focus prevails today. In the fourth era of new public health, in which the complexity of individual health and the environment has come to be recognised, nursing contribution to health promotion has yet to be fully developed (Kendall 1998) and is reviewed in Section 2.3.

2.2.2 Health promotion movement

The evolution of the concept of health promotion through a series of WHO conferences is analysed in the following, and in particular the development of the ideological underpinnings of health promotion is traced.

Since the 1970s, the WHO has led the development of health promotion and its attendant movement (Tones and Green 2004, Kickbusch 2003, Ewles and Simnett 2002, MacDonald and Bunton 2002, Jones and Douglas 2000, Hyndman 1998, Labonte 1993, Rawson 1992). Health promotion scholars (Tones and Green 2004, Jones 2000a) generally cite the WHO's classic definition of health (1946) as planting the seed of the health promotion movement, which gained impetus with the call for "Health For All by the Year 2000" (WHO 1977) and the pursuit of social justice in the Alma Ata Declaration (WHO 1978).

The first WHO conference on health promotion was held in Ottawa, and resulted in the landmark work of the Ottawa Charter for Health Promotion (WHO 1986). This movement was further consolidated during the 1990s in successive conferences on health promotion (Jones and Douglas 2000). Scholars such as Kickbusch (2003), Hyndman (1998) and Labonte (1993) suggest classifying the development of health promotion into two periods: the pre- and post-Ottawa eras. This highlights the monumental contribution of the Ottawa Charter to the evolution of health promotion, which deserves greater attention in this analysis.

By the mid-1980s, it had become apparent that health promotion required a new set of guiding principles, and that these principles should acknowledge the broad determinants of health and the ecological idea of the new public health. These principles should also synthesise the innovative concepts that emerged from the WHO European Office (WHO 1984) and elsewhere, such as the Lalonde's (1974) Report on Health Field Concept (Hyndman 1998). It was for these reasons that the First International Conference on Health Promotion was held in Ottawa.

The Ottawa Charter (WHO 1986) reiterated the definition of health promotion that had been offered by the WHO in 1984 (see Chapter One, Operational Definitions). Of interest is that the definition highlights the process characteristics and the twin-goals of increasing control over, and to improving health.

The most significant contribution of the Charter is its affirmation of five broad health promotion strategies to achieve the identified twin-goals. These five strategies include building healthy public policy, creating supportive environments, strengthening community action, developing personal skills and reorienting health services.

It is important to note that the development of personal skills, the domain in which traditional health education focuses on lifestyle changes, is only one of the five recommended strategies. The Charter emphasises the creation of supportive environments by enhancing the social capacity of the community for health, and thus does not put sole responsibility on the individual. This helps to dispel the victim-blaming image that had tarnished health promotion before the Ottawa Conference (Hyndman 1998).

The concept of victim blaming has particular implications for nursing, the work nature of which requires nurses to work mainly with individual clients or patients. Tones and Tilford (2001) clarify that it does not mean that practitioners such as nurses should abandon health education, but that health education contributes to health promotion in a symbiotic way. Hyndman (1998) affirms that health education that facilitates the development of personal skills is most effective when used in combination with other interventions, such as strengthening community action for health. Kickbusch (2003) asserts that for health promotion to be effective, strategies should address the determinants of health and empower people to participate actively in health promoting activities, which may involve working with individuals or at policy level. These assertions have implications for diabetes education and nursing practice.

From the Ottawa Charter onwards, there have been a series of WHO conferences and resolutions on health promotion, including the Adelaide Conference on Healthy Public Policy (WHO 1988), the Sundsvall Conference on Supportive Environments (WHO 1991), the Jakarta Conference and the Jakarta Declaration on Health Promotion into the 21st Century (WHO 1997), the Health for All in the 21st Century (WHO 1998a), the World Health Assembly Resolution on Health Promotion

(1998e), the Fifth Global Conference on Health Promotion (Mexico), the Health Promotion: Bridging the Equity Gap (2000) and the Bangkok Charter (2005).

These conferences on health promotion reiterated and enriched the concepts and strategies on health promotion put forward in the Ottawa Charter. Underpinning these concepts and strategies is a set of values for health promotion, which is discussed in the following section. It has been argued that "unless activity is consistent with these values, it should not be regarded as health promotion" (Tones and Green 2004, p17).

2.2.3 Ideological commitments of the WHO and empowerment

An analysis of the conferences reveals the main ideological commitments of the WHO in relation to health and health promotion. These commitments are collectively referred to as the "WHO ideology" and have been succinctly summarised by Tones and Tilford (2001, p25-26) as follows.

> "1. Pursuit of holistic goals (i.e. not just physical wellbeing alone).
> 2. The pursuit of equity and social justice.
> 3. Voluntarism and the empowerment imperative."

The term "ideology" deserves clarification (see Chapter One, Operational Definitions). In this context, it refers to the values and associated beliefs held by health professionals that influence their adoption of a theoretical model of diabetes education.

From the historical development of health promotion, it can be seen that values and beliefs about "what health is" and "what the principal health goals should be" have an impact on the practice of health promotion. More importantly, ideas about priorities and strategies for practice derive from these underlying values (Jones and Naidoo 2000), and it is therefore naïve to believe that health promotion practice is value free. This has implications for the clarification of the values of nurses and their impact on diabetes education activities.

Another term that deserves clarification is "empowerment", which is largely open to interpretation (Whitehead 2004, Fulton 1997, Gibson 1991, Rappaport 1984). The nursing literature identifies empowerment as being parallel to other concepts, such as self-care, enablement, independence and partnership, which comprise the popular approach to patient care within nursing (Whitehead 2004). As an abstract concept, empowerment implies opportunities and a sense of becoming, involves relationships with others, focuses more on solutions than problems and is dynamic by nature (Worrell et al 1996). Various definitions of empowerment exist in the literature, and authors generally conceptualise empowerment as the process or outcome of a series of actions.

As an outcome, being empowered translates into autonomous decision-making, self-determination, the ability to exercise a variety of social and life skills and feelings of self-worth (Carlson-Catalano 1992, Gibson 1991, Tones 1998). Israel et al (1994, p152) define empowerment as follows.

> "[It] refers to the ability of people to gain understanding and control over personal, social, economic and political forces in order to take action to improve their life situations".

As a process, empowerment involves "the mechanisms by which people, organisations and communities gain mastery over their lives" (Rappaport 1984, p2). From a nursing perspective, it is regarded as "an interpersonal process by which the resources to enable others to set and reach goals are provided" (Hawks and Hromek 1992, p232), as a social process that occurs within an individual or a community "of recognising, promoting and enhancing peoples' abilities to meet their own needs, solve their own problems and mobilise the necessary resources in order to feel in control of their own lives" (Gibson 1991, p359), as a partnership building process of "enabling people to take control over and make decisions about their lives" (Rodwell 1996, p309), and as "a participative process through a nurse-client dyad designed to assist in changing unhealthy behaviours" (Ellis-Stoll and Popkess-Vaster 1998, p65).

The underlying concept of these definitions echoes the philosophy of the Ottawa Charter (WHO 1986), in which health promotion is seen as enabling a sense of control. Indeed, Tones (1998) asserts that empowerment is a cardinal goal of health promotion. In this thesis, therefore, the definition of empowerment provided by the WHO (1998c, p6) is thought to be most appropriate (see Chapter One, Operational Definitions) that of gaining "greater control over decisions and action affecting health".

It is important to make a distinction between individual and community empowerment, although they are interdependent. Individual or self-empowerment refers primarily to an individual's ability to control the determinants of health, whereas community empowerment refers to individuals working collectively to maintain and enhance their control of the determinants of health, which is usually achieved through community action for health (WHO 1998d). Empowerment as a theoretical model for health promotion is discussed in the latter half of this chapter.

Although nursing could make a promising contribution to health promotion because it involves working with people in a range of settings (International Council of Nurses 2000), authors (Whitehead 2004, Kendall 1998, Latter 1998) note a major distinction between the conceptualisations of empowerment in the nursing sphere and that of the WHO. Nurses tend to shy away from the political and structural domain of empowerment, such as taking on the "citizenship model of practice" (Kendall 1998, p3). This fact has implications for research on nursing practice in diabetes education.

2.3 Evolution of health promotion practice in nursing

2.3.1 Health promotion at the micro level

The WHO ideology can be regarded as an accumulation of wisdom about what health is and how it can be improved. This writer suggests that this ideology offers nursing a solid rationale with which to justify the choice of a particular framework for health education, and more specifically diabetes education. However, it is important that the identified framework is applicable to the nature of nursing practice, otherwise the framework will remain merely rhetorical (Benson and Latter 1998). Therefore, the evolution of health promotion practice in nursing in the new public health era is examined to further refine the rationale.

The number of reviews of health education and health promotion by nurses in the UK has grown in last two decades (Whitehead 2001, Wainwright et al 2000, Smith et al 1999, Whitehead 1999, Caraher 1998, Latter 1998, McDonald 1998, Norton 1998, Piper and Brown 1998, Maben and Macleod Clark 1995, Dines 1994, McBride 1994, Kelly 1992, Gott and O'Brien 1990), which indicates the recognition of the position of health promotion in nursing in the new public health era. Reviewers unanimously identify that health promotion practice amongst UK nurses remains medically-oriented, which is inconsistent with the WHO ideology. In short, nursing practice of health education and health promotion continues today to take a reductionist and biomedical form. This lack of change calls for a paradigm shift in the philosophy and practice of health promotion in nursing (Latter 1998, Macleod Clark 1993). According to Kuhn (1996), a paradigm is a collective set of attitudes, values, procedures and techniques that form the generally accepted perspective of a particular discipline at a point in time.

Norton's (1998) review of related studies carried out in the UK surmises that although health promotion has been widely accepted as part of the nursing role, the theoretical underpinnings of the various approaches to health promotion and the attendant ethical issues, such as those related to participation and empowerment, have not been adequately explored. Piper and Brown (1998) succinctly observe that "clarification of the assumptions and theory base underpinning the various approaches that can be adopted in nursing practice has not taken place" (p383). Whitehead (2003b) observes that nurses may be torn between the biomedical position and a wider health promotion position because the former predominates the system of the workplace, which raises the issue of the extent to which nurses can fight against the system.

Similarly, nurses in the United States (US) (Morgan and Marsh 1998) have also been found to adopt a lifestyle approach to health promotion. Rush (1997, p1292) states that:

> "Nursing has been concerned primarily with the visible aspects of health promotion and has shown little regard for what is invisible . . . ideology shapes the way in which health promotion is approached . . . the profession has done very little in-depth critique of the health promotion movement".

Although no review of the work of HK nurses could be identified from the literature, it has been observed that the health education and health promotion practice mirrors that of the UK, with the heavy influence of the medical model and a focus on individual lifestyles (Chan 2002, Chan and Cheng 1999, Twinn and Lee 1997). This similarity may be explained by the fact that HK's public health system was a replica of the British model of the 1890s, when HK first became a British colony (Nigel 1991). Nursing education was imported from the UK in the 1890s (Paterson 1987), and in line with the ethos of "one country two systems", the British influence on nursing curricula and practice has continued since the return of HK to Chinese rule in 1997 (Chan 2002). For example, in 2003 nursing education reform in HK followed models from the UK and Australia by shifting from hospital-based diploma programmes to university degree preparation. Most of the texts and reference books on nursing used in HK come from the UK, Australia and the US.

A major hindrance to the progress of a paradigm shift is an overemphasis on the technical aspects of health promotion, such as communication and counselling strategies at the expense of an ideological underpinning (Tones and Green 2004, Tones 1998, Rush 1997, Caraher 1994, Beattie 1991, Gott and O'Brien 1990). Caraher (1998) emphasises that reducing health promotion activities to a set of skills is in opposition to the view of the Ottawa Charter (WHO 1986) that nurses should reflect upon "roles and relationships" in patient education. Caraher (1998, p53) argues that "such an approach is based more on attitudes and perceptions than skills".

Over a decade ago, Cribb and Dines (1993) identified that whether or not nursing practice can be termed "health promoting" depends on whether related actions are carried out in a health-promoting way. Interestingly, Tones (1998) characterises health-promoting interactions between nurse and patient as "health promotion at the micro level" (p78), and this characterisation highlights that the nurse-patient interaction process should focus on fostering a sense of control amongst patients.

Indeed for nursing practice to be health promoting, Macleod Clark (1993, p258), who coined the term "health nursing" over a decade ago, suggests that:

> "health nursing is thus the process of promoting health through nursing care. It is vital to emphasis here that it is not what a nurse does that defines sick nursing or health nursing – it is how she does it. The move from sick nursing to health nursing is a philosophical move ".

Macleod Clark (1993) asserts the essence of nurse-patient interaction to be empowerment. Importantly, the move from "sick nursing" to "health nursing" should mainly be in the domain of philosophical orientation, rather than simply skills acquisition. Whether an interaction is considered to be health nursing depends on its process characteristics, such as whether it is collaborative and facilitative.

Latter's (1998) review of the scope of health promotion opportunities for hospital-based nurses exemplifies Macleod Clark's work. The greatest contribution of nurses to health promotion lies at the level of health education within individual nurse-patient interactions. Latter (1998, see also Chapter One, Operational Definitions) defines nurses' health education work as nurses' involvement in interactions with patients that have an obvious focus on education.

Although the will to shed the victim blaming approach emerged in the nursing literature in the 1980s and evolved into a call for a paradigm shift to empowerment in the late 1990s (Macleod Clark 1993, Latter 1998), research findings show that the shift has yet to happen (Smith et al 1999, Cantrell 1998, Macleod Clark and Maben 1998, Wellard et al 1997). Although some nurses have a good understanding of the theoretical underpinnings of health promotion, as is demonstrated by the studies with Project 2000 nurses (Macleod Clark and Maben 1998, McDonald 1998), this understanding is limited to book knowledge, and in practice there is still much confusion about the process characteristics that contribute to health promotion.

Whitehead (2001) suggests that the problem is not that nurses are unaware of the need for a paradigm shift but that a concerted effort is required to shift away from established norms. Reviewing the nursing and health promotion literature published between 1990 and 2002, Whitehead (2003b) observes the prevalence of a stereotypical viewpoint in nursing that everything related to traditional health education is subject to criticism, whereas everything related to health promotion is regarded as desirable and progressive. Whitehead (2003b) concluded that this mentality at best heightens the tension between health education and health promotion, and at worse hinders nursing from progressing towards a health promoting workforce. Whitehead (2003b) argues that health education and health promotion approaches can take the common position of enhancing people's efficacy to accomplish social changes through personal and community capacity building.

Likewise, Robinson and Hill (1998) and Caraher (1998) suggest that health-promoting nurses should acknowledge both the wider socio-political determinants of health and individuals' autonomy in health education practice. Rush (1997) suggests that nurses should not be simply caught up in an ideological debate, but must move on to ask serious questions about how the ideological foundations of health promotion in nursing practice should be established.

Two major observations can be made from the analysis of the theoretical literature in this section. The first relates to obstacles to the paradigm shift. These obstacles include scant in-depth critique of the health promotion movement and a lack of understanding of the theoretical underpinnings of various models of health promotion. Nurses who have acquired a good understanding of the theory may be torn between a biomedical and a health promotion position, and may also suffer from a lack of reflection on the power issues between nurse and patient and those in the larger healthcare system and an overemphasis on the technical aspects of health promotion at the expense of its theoretical underpinnings. The second observation relates to the evolutionary process of the paradigm shift. A body of knowledge has been accumulated on what the meaning and nature of health promotion, and certain scholars have been particularly vocal in calling for a paradigm shift. Macleod Clark's (1993) health nursing approach, Latter's (1998) assertion that nurse-patient interaction is the level at which nurses contribute to health promotion, and Tones' (1998) designation of this level of nursing practice as "health promotion at the micro level" have become a solid platform for the development of practice through which nurses could make progress in the paradigm shift. This writer, although acknowledging the current situation as being an important developmental stage in the evolution of a paradigm shift in health education, argues that the absence of an explicit set of operationalised principles that can readily translate the ideological commitments for the new public health era and the health promotion movement into a model of operation, may in part explain the slow progress of the shift.

2.3.2 A rationale with two principles

It is therefore concluded that the rationale for justifying a suitable framework for health promoting nursing work should consist of two principles. The first principle, which is the WHO ideology, is addressed in the former part of this chapter.

The second principle, that of practicality in nursing, emerges from a review of nursing practice in health promotion in the new public health era. Equally important as ideological soundness is that the selected framework should be applicable to nursing practice and of adequate detail to be readily operationalised in nurse-patient encounters, which are where nursing makes the greatest contribution to health promotion. The challenge is to put into practice what the nursing profession has known and professed for years. To meet this challenge it is of particular importance to adopt an appropriate theoretical framework that can provide guidance at the operational level, that is, in implementation and evaluation. Otherwise, the framework will simply remain another espoused theory (Benson and Latter, 1998).

2.4 Theoretical models of health education and health promotion

2.4.1 The growth of models

This section aims to examine the theoretical models of health education and health promotion with a view to selecting a framework for furthering nursing practice in health education in general and diabetes education in particular, using the rationale formulated in the foregoing section.

Although all of the models of health promotion are value laden, this does not mean that ideological models are built only on values (Tones and Tilford, 2001). The meaning of "model" needs clarification.

Nursing scholars such as McKenna (1997) and Fawcett (1995) hold that models and theory are closely related. Fawcett (1995) states that a model is a set of concepts that includes some assumptions in a meaningful configuration. She suggests that models are more abstract than theories. McKenna (1997, p12) defines a model as:

> "a mental or diagrammatic representation of care which is systematically constructed and which assists practitioners in organising their thinking about what they do, and in the transfer of their thinking into practice for the benefit of the client and the profession".

The models of health promotion are "social constructions, and the very act of model building typically derives from some values base" (Tones and Tilford 2001, p75). Model building should involve the use of theory, and a model "ought to have different components or elements within a system in which the elements are related such that influencing one element of the system is likely to have a knock-on effect on others" (p75).

Morrow and Brown (1994) suggest that there are two main categories of theory – normative and empirical (alternatively described as analytical or substantive), and conceptualise the former as relating to the modes of theorising that legitimate different ethical, ideological or policy positions with respect to what ought to be and the latter as being concerned with the systematic organisation of concepts and principles to provide an explanation and interpretation of social phenomena. Most models of health promotion fit in very well to the category of normative (analytical) theory.

Models have been numerous and popular in health education and health promotion. A decade ago, Rawson and his colleagues (Rawson 1992) identified 17 types of health education models in the UK. Jones and Naidoo (2000) sum up three interacting reasons for this phenomenon. First, the terrain of health promotion is dauntingly large. Second, the terms "health education" and "health promotion" were, before the Ottawa Charter, imprecisely defined and are constantly evolving. In short, the growth of health promotion models is the result of various writers attempting to clarify this confusion by identifying and mapping approaches or models for practice.

2.4.2 Contemporary mapping of models

A review of all of the models available in the literature is beyond the scope of this thesis, and thus five major accounts of these models frequently cited in the contemporary literature are selected for review (Tones and Green 2004, Cottrell et al 2002, Diclemente et al 2002, Ewles and Simnett 2002, Jones and Naidoo 2000, Katz et al 2000, Naidoo and Wills 2000, Downie et al 1996). Appendix 1 on the major accounts of models for health promotion provides a diagrammatic summary of these major accounts.

Ewles and Simnett (2002) have offered a mapping of health promotion practices since 1985 using a five-approach framework (Appendix 1), which has been widely quoted in the literature. Critics (Jones and Naidoo 2000, Naidoo and Wills 2000), although commending this framework as giving a clear and useful account of different ways of thinking about health promotion and illuminating the inherent dilemmas, have been quick to identify the shortcomings of the framework. They hold that it does not explain what might motivate practitioners to select one approach rather than another, does not explain how practice changes or how people might modify or transform their practice, and merely describes existing approaches to practice.

The framework of Downie et al (1996) maps three approaches to health education: traditional, transitional and modern. They suggest that the modern approach should be preferred on philosophical grounds, and go on to provide a model of health promotion made up of the three overlapping spheres of health education, health prevention and health protection. This model gives seven possible dimensions of health promotion (Appendix 1), and its strength is in making obvious the potential overlap of approaches that are not highlighted in Ewles and Simnett's (2002) framework. It thus suggests, for example, that a primary healthcare team might offer a combination of health education, preventive services and disease management. However, critics such as Jones and Naidoo (2000) and Naidoo and Wills (2000) comment that this model does not make explicit the political or social values that underlie each of the seven dimensions of health promotion, nor does it reveal the preferences of the authors as to the methods for implementing the model. These critics go on to observe that the seven dimensions of health promotion do not simply represent practice, but reflect distinctive ways of conceptualising the determinants of health and health promotion. Thus, the lack of discussion on the underlying philosophy of each of these dimensions and the way in which they overlap can create tension and difficulties when mixing them in practice.

Although the two mappings that are described both acknowledge the pursuit of holistic goals, equity and social justice as a way of promoting health, both have their limitations. Ewles and Simnett (2002) do not make any suggestion as to the model that they prefer, arguing that practitioners should choose the model that fits their practice aim and philosophy. Downie et al (1996), although they identify the modern model as the preferred one, do not clarify what the term means or the dimension of health promotion that should be valued over the others. More importantly, both mappings lack sufficient complexity and details for nurses to translate the ideology into practice. It is because of these limitations that these two mappings and the models nested inside are considered to make a limited contribution to nursing practice.

The models described in the following fit more closely to the idea of a normative theory of Morrow and Brown (1994). The third mapping of health promotion models put forward by Beattie (1991) claims that health promotion is embedded in wider social and cultural practices, ideological and political struggles. Health promotion is part of society, which is reflected by territorial struggles for power, control, autonomy and authority. The model (Appendix 1) in Beattie's mapping has four quadrants created by two axes derived from cultural anthropology: mode of intervention (whether authoritative or negotiated) and focus of intervention (whether individual or collective).

Beattie's (1991) model enables nurses to reflect on the social and political perspectives that underlie each of the four health promotion approaches, and to make an obvious link between ways of thinking (ideologies) and ways of doing (approaches). Jones and Naidoo (2000) note that the strength of the model is not only in its charting of current practice, but also in its ability to inform practitioners as to what ought to be done, which is the final outcome of any interaction between deeper social conflicts and values.

However, Beattie's (1991) model has an important limitation, especially in relation to the second principle of the rationale formulated for this thesis. It lacks clear courses of action. Beattie's conception that health promotion is firmly locked into competing structures of social values makes it unlikely that the model will allow a version of practice that will ever be acceptable. Jones and Naidoo (2000) rightly suggest that the model is too abstract and complex for guiding practice, but is good for reflection.

The fourth and the fifth mappings are discussed in the following. Colquhoun (1992) reviews the literature and identifies two major frameworks of health education models that are firmly grounded in theory: that of French and Adams (1986) and that of Tones and Tilford (1994).

The framework of French and Adams (1986) is formulated from the social perspective of health and consists of three phases: behavioural change, self-empowerment and collective action. They argue that collective action should be the model for health promotion, because it positions health as a social and political issue. Collective action has the advantage of closely matching the ideology of the

WHO and that of the new public health. The table in Appendix 1 demonstrates and compares the characteristics of the three phases.

A closer look at the collective action model, however, identifies difficulties in translating its concepts within the context of individual nurse-patient interaction. The immediate focus of health promotion for hospital-based nurses and patients in clinical encounters is health- or illness-related learning. When people are sick, their first priority is primarily to take control of their disease, rather than gathering the capacity to participate in community action or pressure group activities. This writer argues that collective action builds on self-empowerment when a sense of control of some aspects of disease management is developed. Therefore, it is not that the collective action model does not match with the WHO ideology, but that it is not directly applicable to the primary role and function of contemporary nursing.

The second phase of this model, that of self-empowerment, is more applicable to nursing practice. Indeed, French and Adams (1986) regard it as an important foundation for collective action to occur. Reviewing the literature, Colquhoun (1992) suggests that the triphasic model (French and Adams 1986) resembles the three models of health education presented by Tones and Tilford in 1990 and 1994.

In the more recent publications of Tones (Tones and Green 2004, Tones and Tilford 2001), a self-empowerment model of health education is subsumed as an essential component of an empowerment model of health promotion. This is the fifth mapping to be examined in this thesis. Tones and Tilford (2001) in their mapping of models of health promotion suggest a tripartite conceptual analysis that comprises an educational model, a preventive model and an empowerment model. Tones and Tilford (2001, p30) argue that this conceptual analysis of contemporary models of health promotion should be regarded as incorporating "major distinctions in approach to philosophy and practice".

An educational model of health promotion has its basis in the ideology that people have a right to knowledge, which is a type of power on its own, and the assumption is that with knowledge and understanding, people can make informed choices. The most significant values that are central to the ethics of education apply to this model, namely, the principles of rationality and voluntarism. The principle of voluntarism holds the use of coercion or techniques to conceal the purpose of communication to be unethical, which challenges the model particularly if people make unhealthy or irrational choice even after gaining a good understanding. Moreover, most health education programmes are not value neutral (Whitehead 2004, Maben and Macleod Clark 1995), and thus the major weakness of this model is the failure to acknowledge that freedom to choose is curtailed by a number of internal and external constraints, such as psychosocial issues and cultural norms (Tones and Tilford 2001). From this perspective, the model engages in a subtle form of victim blaming.

A preventive model of health promotion is derived from the well-established construct of the medical model, and very often the two are used interchangeably in the literature. The assumption of this model is similar to that of the educational model that knowledge is a requisite for people to make an informed choice. However, the preventive model makes the distinction about whose choice it is to make, and posits that it falls within the domain of professional approved health and sick role behaviour, the adoption of which is assumed to lead to the prevention and control of disease. The model is equivalent to an earlier version of a preventive model of health education that the same authors put forward in 1990 and 1994. Tones and Tilford (2001) observe that simply changing the term to "health promotion" does not change the basic ideology that guides the practice. People who adopt this model tend to ignore the broader social-environmental influence on health behaviour, and it is furthermore obvious that the model does not fit in with the ideology of the WHO and the new public health.

Of the three ideological models, Tones and Tilford (2001) favour an empowerment model of health promotion, arguing that it is consistent with the WHO ideology. In this model, Tones and Tilford (2001) reconfirm the central position of health education in health promotion, and arguing for the synergetic effect of health promotion, reiterate the formula of "health promotion = health education x healthy public policy" (pxiii).

Indeed, the conceptualisation of Tones and Tilford (2001) of the empowerment model of health promotion has two interwoven dimensions of empowerment: individual or self-empowerment and community empowerment. Central to the concept of empowerment is that the relationship between individuals and their environment is "reciprocal" (Tones and Green, 2004), which is shown diagrammatically in Figure 1. It is apparent that health promotion actions both at the individual and community levels are important for the attainment of health and well-being, whereas health promotion actions that target the individual are more related to self-empowerment.

The main assumption of the self-empowerment model of health education is that people cannot make empowered choice with knowledge alone. Figure 2 illustrates the education process of the self-empowerment model, which has been defined as a set of competences (process) and a state (outcome).

> "Individual or self-empowerment as a set of competences and capabilities which, together with certain related personality characteristics, contribute to a relatively high degree of actual control over a given individual life and health" (Tones and Tilford 2001, p40).

> "Self-empowerment is a state in which an individual possesses a relatively high degree of actual power – that is, a genuine potential for making choices. Self-empowerment is associated with a number of beliefs about causality and the nature of control that are health promoting. It is also associated with a relatively high level of realistically based self-esteem together with a repertoire of life skills that contribute to the exercise of power over the individual's life and health" (Tones and Tilford 2001, p40).

Tones (1998) makes the claim that the self-empowerment model of health promotion is particularly suitable for nursing practice in the context of individual or small-group health education encounters, or "health promotion at the micro level" (p78).

To operationalise the self-empowerment philosophy in practice, Tones provides an account of the education strategies to be employed in the education process (Figure 2) (Tones and Tilford 2001), and illustrates how the ideology of the self-empowerment model should be translated in one-to-one nurse-patient encounters (Figure 3) (Tones and Green 2004). It has been stated that beliefs about control are associated with self-empowerment, and Tones and Green (2004) further assert that the concept of self-efficacy (Bandura 1997) is particularly useful in the operationalisation of self-empowerment philosophy, and offers a theoretical framework for practice. The relevance of self-efficacy to health behaviour change is well established (Marks et al 2005a, 2005b, Rimal 2000, Ozer and Bandura 1990, Strecher et al 1986). Its operationalisation is discussed in the next section (2.4.3).

To conclude, the application of the rationale to examine the contemporary mappings of health promotion models leads to the emergence of the self-empowerment model of health education as the most appropriate framework to guide nursing practice in health education in general and diabetes education in particular.

Figure 1

Reciprocal determinism: Health promotion and the environment
(Tones and Tilford 2001, p40)

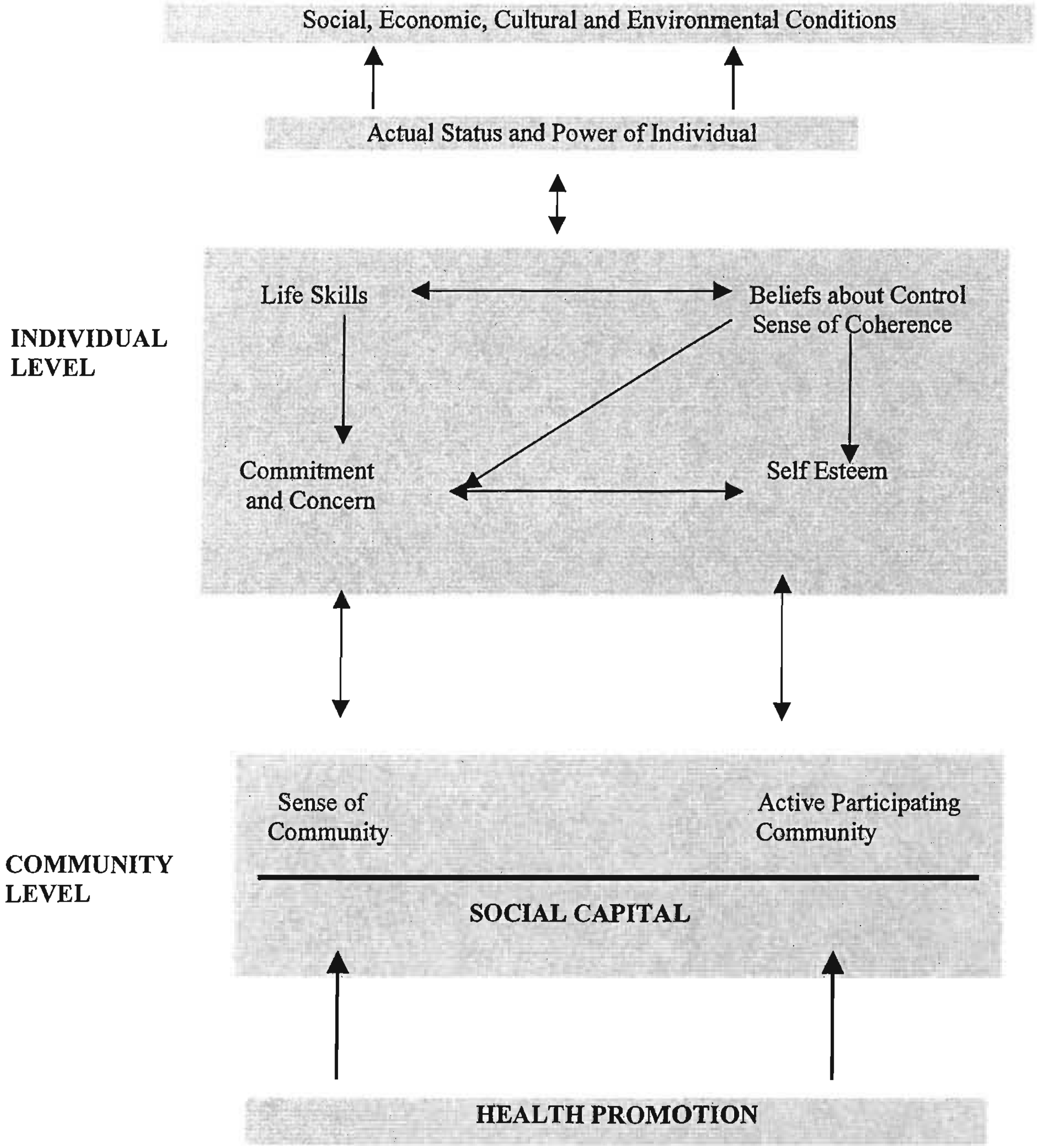


Figure 2

Self-empowerment: The education process (including examples of key education strategies)

(Tones and Tilford 2001, p109)

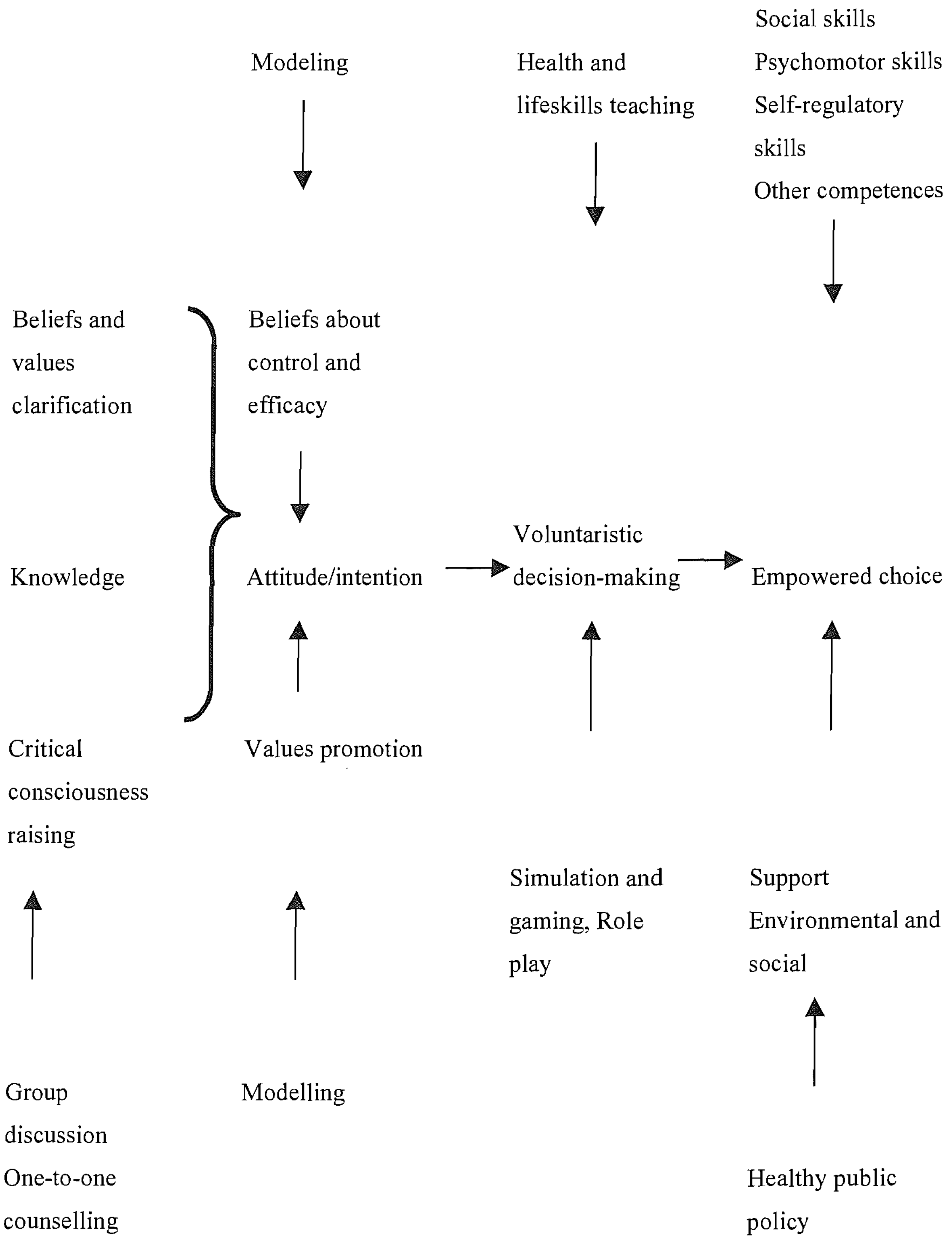


Figure 3

An empowering encounter (including examples of key education strategies)

(Tones and Green 2004, p289)

Health Professional	Client
Communication phase	
▪ Applies principle of REG establish rapport, using counseling skills such as active listening ▪ Correctly interprets non-verbal communication ▪ Checks for understanding ▪ Checks intelligibility of any written information provided ▪ Takes steps to maximise recall and provides aides-memoire when necessary	▪ Responds to empathic communication of communicator ▪ Receives message, pays attention, interprets message correctly ▪ Recalls key points ▪ Pleased to have written aides-memoire – understands them, considers them relevant, not antagonised by content of presentation
Motivation phase: empowers decision making	
▪ Explores client's existing beliefs, attitudes, skills, seeks to modify beliefs and attitudes where appropriate ▪ Provides information and helps decision making; contributes to acquisition of appropriate empowering skills (psycho-motor, social and life skills). ▪ Checks appropriate levels of learning have occurred ▪ Explores client's environmental circumstances ▪ Negotiates mutually acceptable contract	▪ Forms realistic beliefs (about causes and nature of illness, susceptibility, seriousness, costs and benefits of possible actions, etc.) ▪ Has a positive attitude to change and so acquires the necessary skills. Develops self-efficacy beliefs ▪ Agrees to a 'contract'
Support phase	
▪ Provides further support to make the healthy choice the easy sustainable choice (social and self-regulatory skills, etc.) ▪ Helps mobilise social and environmental support (by setting up self-help groups, 'buddy' systems, etc.) ▪ Acts as advocate for social and environmental change (housing provision, etc.) ▪ Acts as advocate (via a professional body, say, to challenge social economics determinants of poor health) ▪ Checks client's progress and keeps an eye on improvements at community level	▪ Acquires new competences to support decision to change ▪ Adopts and sustains healthy actions ▪ Becomes involved in community action – thus contributing to stock of social capital

2.4.3 Self-empowerment model of health education: Operationalisation

This section gives a closer view of the technical aspects of the self-empowerment model, or how to operationalise the ideology of empowerment in individual-focused health education activities.

In a chapter on the applicability of the self-empowerment model in nurse-patient interaction, Tones (1998) notes that the key self-empowerment concepts include beliefs about control. Amongst theories of control, and of particular usefulness in the translation of empowerment philosophy into practice, is the concept of self-efficacy (Tones and Green 2004).

Self-efficacy (Bandura 1997) refers to the confidence of individuals to perform effectively specific tasks. Bandura (Ozer and Bandura 1990) asserts, firstly, that a body of research supports that methods of empowerment are helpful in facilitating people to make changes in their personal and social domain, and secondly that research evidence supports the notion of "methods of empowerment as operating through self-efficacy mechanisms" (p472). Self-efficacy beliefs are dynamic, and can be enhanced by four inter-related mechanisms: performance accomplishment, vicarious experience, verbal persuasion and physiological states.

Tones and Green (2004) give examples of education strategies that might be formulated to enhance individual self-efficacy by targeting such mechanisms. To enhance performance accomplishment, positive experience may be gained through role play. To facilitate vicarious experience of efficacy, learning though observing credible or homophilous models achieving success could be arranged. In terms of verbal persuasion, attitude changes techniques such as the tactics of persuasive communication could be considered. However, Tones and Green (2004, p96) caution that changes that rely on these tactics alone may be short-lived, and persuasive communication as an education strategy "is not empowering and [is] of dubious ethicality". For physiological state, Tones and Green (2004) emphasise lowering the fear and uncertainties that individuals anticipate upon making behaviour changes, because individuals may rely on information from their physiological state to judge their capabilities. Educators may use education strategies such as anticipatory guidance and stress management techniques to minimise the negative influence. In sum, the education process should aim to enhance self-efficacy directly through the use of education strategies, and indirectly by providing the necessary skills to overcome environmental barriers.

The Educational Process of Self-empowerment Model in Figure 2 shows the different education strategies, such as value clarification, counselling, critical consciousness raising, experiential learning, and the mobilisation of support, that are suitable for the different stages of an education encounter. Figure 3 (An Empowering One-to-One Encounter) further provides a flowchart that maps the "educational" and "client" tasks that characterise the major features of interaction that is empowering in nature. Tones (1998) explains that although the nurse-patient interaction is shown as a one-way process, with the nurse seeking to communicate with the patient, motivate them and provide them with post-decision support, this is only for the sake of simplicity. In practice, the process is two-way with the patient's learning task operating in parallel with, and in response to, the nurse's educational efforts.

Tones (1998) identifies three essential tasks that motivate healthy decisions. Firstly, patients need to believe that they are capable of achieving a desired goal to take action. In this context, self-efficacy (Bandura 1997) and the education strategies discussed in the foregoing provide nurses with evidence-based practice (Marks et al 2005a, 2005b).

The second task is concerned with the detailed analysis of patients' circumstances. The broad determinants of health are applicable to such analysis, which is related to assessing patient's social and environmental resources. If social or environmental factors militate against individual choice, then suggestions about lifestyle changes are ineffective and also involve a degree of victim blaming. When the environment appears to be conducive and changes appear to be possible, then a contract can be set up as a joint effort, which identifies the roles and commitments of both nurse and patient. This contracting phase thus constitutes an important empowering aspect of the motivational process.

The final task is the active provision of support, in the form of information and skills such as resisting social pressure and self-regulatory skills. According to Tones and Green (2004), three key processes are involved in the acquisition of a repertoire of self-regulatory skills: self-monitoring, self-evaluation and self-reinforcement. The main essence of successful acquisition of these skills is to the handling of motivational problems. Facilitating these skills is conceptualised as the development of psychosocial self-efficacy (Anderson et al 1995).

Tones (1998) adds a cautionary note on the dilemma of attending to the environment at large in the practice of "health promotion at the micro level". Empowerment involves the securing of an environment that facilitates choice by positive action and the removal of barriers. Although a nurse might mobilise social support to create a supportive environment for patients, it would be naïve to expect such actions on the part of individual nurses to have any significant effect on social ills such as poverty and unemployment and the feelings of helplessness. However, although it is unreasonable to expect individual nurses to take on such responsibility, Tones reminds nurses that the Ottawa Charter (WHO 1986) urges all health professionals and their professional bodies to act as lobbyists and to advocate for healthy public policy.

Perhaps a way forward for nurses would be to form healthy alliances and community coalition to press for substantial change through cooperative action. This echoes Latter's (1998) suggestion on the characteristics of empowered nurses and Caraher's (1998) notion of attending to the social determinants of health in individual health education encounters. In the nursing context, the more immediate environmental concerns are related to the favourableness of health service policy and nurses taking account of patients' environment and making it more conducive to cooperation. Critics caution that health promotion efforts, if they do not address the empowering/controlling contradiction, can serve as another type of social control (Grace 1991, Rappaport 1984). In relation to this, nurses must consider the nature and meaning of power in the healthcare context, and its effects on nursing and patients (Whitehead 2003c).

2.4.4 Self-empowerment: Issues of evaluation

It is important to address the issue of evaluating self-empowerment interventions, because the inherent difficulties of doing so have drawn much attention (Kendall 1998, Nutbeam 1998). Nurses should pay particular attention to the inclusion of process evaluation to illuminate how desirable outcomes are brought about (WHO 1998b).

Tones and Tilford (2001) suggest the use of indirect, intermediate and outcome indicators according to a continuum related to the timing of a health promotion programme, which they call the proximal-distal chain. The indirect indicator lies at the proximal end and the outcome at the distal end of this continuum. The intermediate indicator describes the individual characteristics that result from programme inputs, and which may demonstrate a change that will act as a mediator between input and outcome. Evaluation based on the effectiveness with which these indicators are achieved is called impact evaluation (Israel et al 1995). The suggestions of French and Adams (1986) for evaluative criteria for self-empowerment interventions fall nicely into the category of impact evaluation, and include changes in self-efficacy and independent decision-making through self-reportings.

The outcome indicators depend on what the health promotion programme has set out to achieve. Tones and Tilford (2001, p132) observe that "identical indicators can serve to indicate indirect achievements, the achievement of intermediate goals or even outcomes" due to the fact that the ideological purpose of the programme will manifest itself in the type of outcome indicator to be measured. In the context of self-empowerment, the intermediate indicators that have been mentioned may be the outcomes, because they achieve the goal of strengthening individuals' capacity to take action.

In addition, other inputs may have an indirect impact on the success of specific nurse-patient encounters. Nurses who are prepared to employ empowering education strategies and communication skills are more likely to be able to develop patients' self-efficacy, and therefore evaluating these competences generates indirect indicators. Evaluation based on the effectiveness with which these indicators are achieved is categorised as process evaluation (Israel et al 1995).

2.5 Self-empowerment and self-management: the interface

It is important to examine the interface between self-empowerment and diabetes self-management. The literature shows that to successfully self-manage chronic illness, individuals require the development of self-efficacy (Lorig 2003, Bandura 1997) in the areas detailed below.

A review of the literature on self-management of chronic illness shows that of the three essential areas of self-management for people who are affected by chronic illness identified in the oft-cited study of Corbin and Strauss (1988), one is medical, and relates to the taking of medicines and meal planning, and the other two are psychosocial, namely, managing and adapting important life roles and managing the negative emotion that arises from living with chronic illness. Public health scholars (Holman and Lorig 2004, Bodenheimer et al 2002) suggest that education for the self-management of chronic illness should give equal emphasis to each of these three areas. Curtin et al (2005), in reviewing the chronic illness literature, suggest a framework for understanding the self-management of people with chronic illness that addresses two dimensions: healthcare and everyday life. The self-management of healthcare involves medical management and negotiation with the healthcare system and professionals, over care, whereas the self-management of everyday life involves living a normal life and maintaining important life roles.

Fisher et al (2005), although arguing for closer attention to the socio-environmental context of self-management amongst diabetic patients, suggest that patients require three types of assistance: the identification of realistic diabetes goals, the acquisition of skills to achieve those goals, and the maintenance of motivation. An examination of these suggestions indicates that they belong to the technical and psychosocial areas of self-efficacy (Marks et al 2005a, 2005b). Paterson et al (1998) conducted a meta-ethnography of qualitative studies published from 1980 to 1996 that pertain to the lived experience of diabetic patients, and found that patients need competence in managing both medical and psychosocial issues. Similarly, a review of the diabetes self-management literature from 1995 to 2002 identifies knowledge, physical skills and emotion as three major areas that influence self-management (Sigurdardottir 2005). The review also indicates that self-efficacy in these areas affects metabolic control.

This writer, in reviewing the literature (Curtin et al 2005, Fisher et al 2005, Sigurdardottir 2005, Paterson et al 1998, Corbin and Strauss 1988), infers that to self-manage successfully chronic illness, patients require four major competences: medical knowledge, life skills to negotiate care with health professionals and the healthcare system, the ability to adapt to role changes and the ability to manage negative emotion. To facilitate these four competences is to develop self-efficacy in patients (Bandura 1997), which is to build patients' "personal confidence beliefs about [their] capacity to undertake behaviour or behaviours that may lead to desired outcomes" (Marks et al 2005b, p148).

The construct of self-efficacy has been identified as the theoretical basis of successful education interventions for self-management of chronic illness (Lorig 2003). Self-efficacy for the technical aspect of self-management, for instance, dealing with insulin-therapy (medical knowledge), may not predict self-efficacy across the psychosocial aspect such as life skills, adapting to role changes and managing negative emotion, therefore it has been suggested that health professionals should place equal attention to both the technical and psychosocial aspects of self-efficacy (Marks et al 2005a, 2005b, Lorig 2003).

As is shown in the discussion on the operationalisation of self-empowerment model in Section 2.4.3, the construct of self-efficacy of Bandura (1997) is of particular usefulness in translating empowerment philosophy into practice (Tones and Green 2004). Therefore, it is argued that the education process of self-empowerment model is the most appropriate amongst that of the three models in facilitating self-management of patients affected by chronic illness.

2.6 A critique of an application of an empowerment model to diabetes education

In reviewing diabetes education research within the broader context of patient education, Visser and Snoek (2004) and Roter et al (2001) consider the former to have taken the lead since the 1990s in adopting concepts such as patient activation, autonomy and empowerment into interventions. In the research literature, three diabetes teams have pioneered the work of empowerment: Adolfsson et al (2004), Cooper et al (2003a) and Anderson et al (1991). The Anderson team has the longest history and has made the greatest contribution to the adoption of patient empowerment amongst diabetes educators (Krischbaum et al 2003), and therefore their work is assessed to identify its implications for this study.

Since 1990, the Anderson team of the Education Committee of the University of Michigan Diabetes Research and Training Centre has explicitly rejected the preventive approach that aims at compliance, considering it to be conceptually inappropriate for diabetes education (Feste 1992, Anderson et al 1991). Anderson et al (1991) developed a professional training programme for diabetes educators, including nurses, to develop their counselling skills and attitudes in delivering an empowerment approach to diabetes education, which they term as "patient empowerment". They define empowerment as "a patient-centred, collaborative approach tailored to match the fundamental realities of diabetes care" (Funnell and Anderson 2004, p124) and as a process that aims at "helping people discover and use their innate ability to gain mastery over their diabetes" (Anderson and Funnell, 2005a, pXVI). Anderson et al (1995, p944) explain that the adoption of patient empowerment is derived from a philosophy.

> "This philosophy is based on the assumption that to be healthy, people need to have the psychosocial skills to bring about changes in their personal behaviour, their social situations, and the institutions that influence their lives. These skills probably play an important role in the development and implementation of a successful diabetes self-care plan, i.e., a plan that enhances the patient's health and quality of life".

Psychosocial skills in diabetes self-management refer to the ability to identify realistic goals, decide on suitable methods to achieve those goals, identify and solve barriers to achieving those goals, obtain resources and support and cope with the stress that arises from diabetes and its management (Anderson et al 2000). Anderson et al (1995), in evaluating the effectiveness of applying patient empowerment, could find no instrument conceptually relevant, and therefore developed a diabetes-specific psychosocial self-efficacy instrument, the Diabetes Empowerment Scale (Anderson et al 2000, 1997, 1995). There is evidence that patient empowerment can improve patients' psychosocial self-efficacy, metabolic control and quality of life (Anderson et al 1995).

After two decades of advocacy and educating health professionals about patient empowerment, Anderson and Funnell (2005b) maintain that its application depends very much on the shift to an empowerment paradigm. This writer pays tribute to the Anderson team for attempting to create a paradigm shift in diabetes education since the 1990s. The team has contributed on both the philosophical and the operational levels, which is highly commendable.

An area for further development can be identified at the operational level of the empowering process. Anderson et al (1991) seem to equate strategies and techniques for patient empowerment with a set of counselling skills developed from a person-centred approach to counseling psychology (Anderson and Funnell 2005b). This operationalisation raises two issues for attention. Although the use of counselling skills is indispensable in education strategies for empowerment, focusing on counselling skills alone may cause practitioners to lose sight of the broader picture of the systematic application of such education strategies. Secondly, it has been noted that when counsellors use techniques exclusively to help their clients cope, rather than change their environment to allow better health, this can be regarded as a subtle form of victim blaming (Piper and Brown 1998, Beattie 1991). Although the Anderson team's more recent publications have readdressed this limitation and put greater emphasis on the importance of the philosophy that underpins the practice

(Anderson and Funnell 2005b, Funnell and Anderson 2004, Anderson and Funnell 1999), the role of health professionals in creating a conducive environment for healthy behaviour to take place has not been given prominence.

2.7 Summary

This chapter reviews the historical development of health education and health promotion. This review contributes to the formation of a rationale for selecting a model for diabetes education and advancing nursing practice in health education. Applying the rationale to an analysis of the major mappings of health promotion models, Tones and Tilford's (2001) self-empowerment model of health education nested within an empowerment model is found to be the most appropriate model. An account of the technical aspects of self-empowerment process and its evaluation issues is given, the interface between self-management and self-empowerment is examined, and a critique of a particular application of empowerment in diabetes education is provided. The next chapter reviews the research literature.

Chapter Three – Literature Review: Research

3.1 Introduction

This study aims to evaluate the process of diabetes education as conducted by HK nurses. The previous chapter analyses the theoretical models of health education and identifies self-empowerment as the most appropriate model to guide nursing practice in diabetes education. This chapter reviews the research literature to sharpen the research question, and identifies some methodological concerns for consideration in this study.

This chapter reports three reviews of the research literature. The first review is undertaken to identify the current picture of diabetes education in provider-patient interactions, and specifically seek to address two questions. The first question is that of what is known and unknown about the interaction process of diabetes education, and the second looks at the methodological concerns that arise from the research methods employed to investigate provider-patient interactions.

Gaining insight into the research on provider-patient interaction in the context of health education interaction more generally and across disease categories is important to obtain a comprehensive picture, and thus these more general studies are the subject of the second literature review. As this study was undertaken in HK, an understanding of HK nursing practice in health education is necessary, which comprises the third review.

Before embarking on the three reviews, it is crucial to obtain a background understanding of the trend in diabetes education research. In addition, it is also considered important to give an overview of the more general health education research on provider-patient interactions that makes communication skills (see Chapter One, Operational Definitions) the focus of investigation.

This chapter starts with two analyses of literature reviews (3.2 and 3.3), which is then followed by a review of the studies on provider-patient interactions in the context of diabetes care and education (3.4). The next review concerns the current scene and the main methodological concerns of provider-patient interaction in the context of health education (3.5). Studies that have been conducted with HK nurses on health education practice are reviewed to depict the local situation (3.6). Finally, the chapter concludes with a section that sums up the current picture of nurse-patient interaction in education activities and the methodological concerns that must be given attention in this study (3.7).

3.2 Diabetes education research in literature reviews

3.2.1 Search methods

MEDLINE and CINAHL were searched using the keywords literature review, patient education, education, teaching and diabetes mellitus. A manual search was then undertaken using the references listed in the review reports that were obtained from the databases. Reviews were only selected if they were published in English. The search yielded 18 reviews published between 1998 and April 2005 (Ellis et al 2004, Jack 2003, Krischbaum et al 2003, Steed et al 2003, van Dam et al 2003, Brown et al 2002, Norris et al 2002, Williams and Zeldman 2002, Elasy et al 2001, Roter et al 2001, Anderson and Funnell 2000, Whittemore 2000, Brown 1999, Fain et al 1999, Glasgow 1999, Glasgow et al 1999, Young-Hyman 1999, Albano et al 1998).

The search period was limited to the last eight years, 1998 to 2005, mainly because of the proliferation of literature reviews in this field during this time. However, the period covered by the identified reviews themselves varies, and ranges from three years to the launching of MEDLINE in 1966, and covers studies published between 1966 and 2002. Appendix 2 shows the nature of these reviews, the years that they cover and the methodological concerns that they raise.

3.2.2 Effects of diabetes education

Diabetes, as an emerging pandemic public health problem, requires diabetes education that facilitates patient self-management as a fundamental component of secondary prevention (Bowman et al 2003, WHO 2002a, 2002b, Glasgow et al 1999, Vijan et al 1997).

It has been agreed that diabetes education has an effect on knowledge and metabolic control of patients (Ellis et al 2004, Norris et al 2002), and indeed this has become a consistent conclusion in the 2000s, in concurrence with literature reviews published in the 1980s (Brown 1990, Padgett et al 1988). Although knowledge is a prerequisite for behaviour changes, using a didactic approach to education alone demonstrates no effect on glycaemic control (Steed et al 2003), whereas approaches that utilise face-to-face interaction, cognitive reframing methods and exercise content successfully decrease HbA1c levels in patients (Ellis et al 2004). A consistent finding is that increased knowledge of the condition alone does not predict any improvement in glycaemic control. Norris et al (2002) review randomised control trials (RCTs) published between 1980 and 1999 that tested the effect of diabetes self-management education on glycaemic control amongst adults with type 2 diabetes, and find good but only short-term effects.

A systematic review was conducted by Krischbaum et al (2003) on both theoretical and empirical articles published between 1985 and 2001 to examine evidence of the factors that contribute to effective diabetes self-management. The review provides a good mapping of the crucial factors, which include involving patients in their own care, guiding patients in actively learning about the disease, exploring patients' feelings about having the disease and teaching the skills necessary for self-regulation to control outcomes. Krischbaum et al identify the overall goal of these factors to be improving patients' self-efficacy and thus their self-management ability. Krischbaum et al suggest that education should include fewer didactic inputs and more interactive exercises. In addition, they suggest that follow-up contact is valuable.

A systematic review conducted by van Dam et al (2003) identifies only eight studies (1980-2001) that investigate the effects of provider-patient interaction on patient self-management and outcomes. These eight studies, due to the review selection criteria, are all quantitative, and most are RCTs. Van Dam et al (2003) question the sustainability of the changed behaviour of the providers and the minimal effect of patient-provider interaction on patient self-management and outcomes, and conclude that studies that focus directly on enhancing patient participation are more effective than those that change providers' behaviour to make them more patient-centred in their consultations.

3.2.3 Methodological concerns

3.2.3.1 Research design

The research is dominated by a focus on outcome evaluations (Ellis et al 2004, Norris et al 2002), and the research design employed is mainly that of the RCT or pre-post intervention comparison. Larme et al (1998) searched three databases, MEDLINE, CINAHL, and HEALTH, and obtained no studies that use qualitative research approach or involve a process evaluation. This finding is consistent with the wider field of patient education research, which is again dominated by outcome studies (Kok et al 1997).

Although a huge body of diabetes education research literature is available (Cooper et al 2003b), process evaluations that investigate the process of diabetes education are almost non-existent (Jack 2003, Steed et al 2003, Glasgow 1999, Larme et al 1998). To advance diabetes education practice, researchers and practitioners must seek to "identify the key components of an intervention that are effective, to identify for whom the intervention is effective, and to identify under what conditions the intervention is effective" (Linnan and Stackler 2002, p1). Process evaluations can assist in making these discoveries.

Reviewers concur that researchers need to listen to both the voices of patients, who are the receivers (Roter et al 2001, Whittemore 2000, Fain et al 1999, Albano et al 1998), and those of nurses, who share the main responsibility for providing diabetes education (Whittemore 2000, Brown 1999). Qualitative methods could help make such voices heard, but there has been limited use of qualitative methods of data collection in diabetes education research (Larme et al 1998).

3.2.3.2 Descriptions of education interventions

A major criticism repeatedly made in the reviews (Ellis et al 2004, Jack 2003, Steed et al 2003, Elasy et al 2001, Whittemore 2000, Brown 1999, Glasgow 1999, Young-Hyman 1999, Albano et al 1998) is the inadequate description of the education interventions tested in RCTs. Ellis et al (2004) observe that this inadequacy is consistently notable in five major meta-analyses published between 1988 and 2002 (Norris et al 2002, Albano et al 1998, Brown 1992, Brown 1988, Padgett 1988). In their meta-analysis, Ellis et al (2004) indicate that diabetes education can improve glycaemic control, but caution that the inadequate descriptions given in many studies have hampered the accuracy of their analysis. They attribute the lack of effect of the "dose" or amount of education intervention on glycaemic control in part to the inadequate description of the length, intensity and quality of the intervention under study. Insufficient description is also regarded to contribute to difficulties with the replication and application of research findings. Indeed, patient education in general, and diabetes education in particular, is identified as involving a complex intervention, the various components of which cannot be evaluated without their clear description (Muhlhauser and Berger 2002, Norris et al 2002 , Elasy et al 2001).

Steed et al (2003) originally aimed to identify the components of diabetes education interventions that lead to improved psychosocial outcomes in studies published between 1980 and 2001. However, this aim could not be fulfilled, largely because of the lack of clear descriptions in the original papers. Similarly, one of the purposes of the review of Elasy et al (2001) of studies published from 1990 to 1999 was to develop a taxonomy of variables for diabetes education interventions. However, they found that the duration and quality of provider-patient interaction were frequently omitted variables. Young-Hyman (1999) reviews studies from 1985 to 1998 that include provider characteristics as a variable, and suggests developing and using performance indicators to assess interactions. Elasy et al (2001) and Young-Hyman (1999) both propose the measurement of the skills and abilities of health providers in facilitating patient self-management. As early as in 1992 some reviewers (Glasgow and Osteen 1992) had already noted a pressing need for the development of instruments to measure provider-patient interaction in diabetes education, but this remains an underdeveloped area.

Glasgow (1999), in reviewing outcome research from 1997 to 1999, finds that little of the research includes an examination of how communication skills and education strategies illuminate patient outcomes achieved. In addition, only 2% of the research published before 1990 measures provider-patient interaction, and none published between 1997 and 1999 does so. The review of Elasy et al

(2001) of studies published between 1990 and 1999 concludes that provider-patient interaction is the essence of patient education, but can be regarded as "black box". Fain et al (1999, p10), in their review of studies published between 1985 and 1998, ask, "what constitutes diabetes education?" This succinctly sums up the current status of diabetes education research, which is characterised by a lack of process evaluation.

3.2.3.3 Theoretical frameworks

Although diabetes education research since the 1990s may be commended for taking the lead in adopting concepts such as patient activation, autonomy and empowerment into interventions (Visser and Snoek 2004, Roter et al 2001), the utilisation of theoretical frameworks for research is still surprisingly uncommon. Reviewers have repeatedly identified this omission (Jack 2003, Williams and Zeldman 2002, Elasy et al 2001, Roter et al 2001, Whittemore 2000, Fain et al 1999, Glasgow et al 1999), and note the consistently inadequate theoretical grounding of diabetes education interventions and the lack of research to test theoretical frameworks.

Roter et al (2001) review studies published between 1980 and 2000 that serve as examples of operationalising theory, and obtain only seven studies, all of which were published after the mid-1980s (Kinmonth et al 1998, Williams S. et al 1998, Langewitze et al 1997, Anderson et al 1995, Street et al 1993, Rost et al 1991, Greenfield et al 1988). Roter et al classify these studies into Freire's (1983) three levels of critical consciousness, which are related to the empowerment model (Tones and Tiford 2001). Roter et al echo the assertion of Anderson and Funnell (2000) of an emerging shift from a compliance to an empowerment paradigm in research, but whether a parallel shift has occurred in practice remains unclear.

Jack's (2003) review of studies published between 1995 and 2002 examines the effects of diabetes self-management education in a community setting. Surprisingly, only two out of the eight reviewed studies that met his selection criteria incorporate behavioural or education theory to determine effects of interventions on outcomes, which suggests that the use of theory to guide research, although emerging, has been slow. Jack (2003, p423) states that "in the absence of improved educational methodologies among health providers, present improvements will continue to be minimal". The American Association of Diabetes Educators remarks that "programmes that lack a theoretical basis tend to stand in isolation without a common framework for reference" (AADE 2003, p65).

3.2.3.4 Outcome measures

In examining the targeted outcomes employed in studies of diabetes education, reviewers such as Jack (2003), Norris et al (2002), Brown (1999) and Glasgow (1999) find that knowledge and

HbA1c levels are the most common, with quality of life gaining popularity in the 2000s. This trend reflects the surge of attention to psychosocial variables. Of the 36 studies reviewed by Steed et al (2003) from 1980 to 2001 on the impact of education and psychological interventions on psychosocial outcomes, 75% were published after 1992, which demonstrates the increased interest that psychosocial outcomes have received since the 1990s.

Two observations can be made from the reviewers' comments. The first is that it is considered especially important to select patient outcomes meaningful to the framework adopted (Anderson and Funnell 2000, Glasgow 1999) and specific to diabetes (Steed et al 2003, Norris et al 2002). The second is that patient outcomes usually decay over time. Norris et al (2002) question what contributes to non-sustainable patient outcomes, and especially glycaemic control. It is recognised elsewhere that in addition to patient education and behaviour, many other factors have an impact on metabolic control, including medical regimens, environmental factors and disease progress (Snoek 2003, United Kingdom Prospective Diabetes Study Group, UKPDS 1998).

3.2.3.5 Cultural and geographical attention

A research area that has been given inadequate attention is the cultural characteristics of populations that are non-white or not living in the West (Brown et al 2002, Whittemore 2000, Brown 1999). This has led to the serious under-reporting of the influence of cultural characteristics on education interventions in these populations. It is noteworthy that prevalence studies show that Indian and Chinese populations bear a disproportionate burden of diabetes (Wild et al 2004).

3.2.4 Conclusion

To conclude, what is known from the research evidence is that although diabetes education has an effect on patient knowledge and the ability to self-manage, and that the use of education strategies has a great bearing on patient outcomes. The use of a didactic approach alone demonstrates no effect on metabolic control, whereas the enhancement of patients' self-efficacy and participation demonstrates a good effect. The evidence also indicates that the effects of professional programmes in altering providers' behaviour in educational provision are unsustainable. What is unknown is the link between the outcomes achieved and the communication skills and education strategies employed in the process of education. The major methodological issues that arise from the analysis of these identified literature reviews include the need to:

1. Employ process evaluation in diabetes education so as to unpack the "black box".
2. Adopt a theoretical framework in research.
3. Measure outcomes that have meaning within the adopted framework.
4. Explore from patient and nurse perspectives the influence of diabetes education on self-management.

5. Address the influence of the cultural characteristics of non-white populations on the practice and expectations of diabetes education.

3.3 Provider-patient communication research in literature reviews

3.3.1 Search methods

Although health education (including patient education) should not be reduced simply to a set of communication skills or styles (Tones and Tilford 2001, Caraher 1998), communication is a central vehicle for health education (Thorne et al 2004, Visser and Wissow 2003, Roter et al 2001). The research literature on provider-patient encounters generally focuses on communication behaviours, and this area of research has experienced an exponential growth since the mid-1960s (Cegala 2003, Caris-Verhallen et al 1997, Anderson and Sharpe 1991). Analysing the literature reviews published between 1990 and April 2005 would be beneficial and adequate to highlight the relevant issues that may arise in the focused review of the primary studies on diabetes education.

MEDLINE and CINAHL were searched using the keywords literature review, patient/client, nurse, doctor, health professional/provider, consultation, intervention, interaction, communication and encounter. Literature reviews were selected if they met the criteria: (1) being directed at provider-patient communication; (2) investigating interaction processes using observation techniques, interviews, or questionnaires; and (3) presenting data on process characteristics. A manual search was also undertaken with references listed in the review reports that were obtained.

Fourteen reviews were located (Willems et al 2005, Shattell 2004, Cegala and Broz 2002, Wilson and Childs 2002, Kruijver et al 2000a, Kruijver et al 2000b, Hulsman et al 1999, Williams S. et al 1998, Caris-Verhallen et al 1997, Ong et al 1995, Jarrett and Payne 1995, Stewart 1995, Simons and Elias 1994, Anderson and Sharpe 1991), nine of which focus on doctor-patient communication and five of which focus on nurse-patient communication. These reviews cover studies published between 1966 and 2002. Appendix 3 provides an overview of the retrieved reviews.

3.3.2 Conceptual categories of communication skills

Anderson and Sharpe (1991) review the literature published between 1973 and 1989, and sort communication skills into two commonly cited categories of conceptual groupings of communicative behaviour: interpersonal processes and interviewing skills. Ong et al (1995) concur with this categorisation. The first category, interpersonal processes, refers to the linguistic and paralinguistic elements of a conversation. The research methods and analysis employed in examining interpersonal processes are usually derived from social science literature, with discourse analysis and interaction analysis being the most commonly used analyses. Communicative behaviour usually takes the form of either task-oriented behaviour (for example, information giving) or socioemotional behaviour (for example, empathy). The second category of interviewing skills is subdivided into two subcategories: content and techniques. Content refers to the ability to gather and provide information in an encounter, whereas technique focuses on the competency of the provider to conduct and manage an encounter.

3.3.3 Providers and the focus of studies

Provider-patient interaction is a complex phenomenon (Shattell 2004, Kruijver et al 2000a, Stewart 1995). Although providers and patients may come together to pursue a common objective, encounters and cooperation are usually non-voluntary, with each party often bringing a different perspective, and often a different power base (Shattell 2004, Kruijver et al 2000a, Williams S. et al 1998, Jarrett and Payne 1995). The research focus mainly centres on providers, and ignores the contribution of patients and contextual factors to the encounters (Jarrett and Payne 1995, Simons and Elias 1994). Shattell (2004) is only able to identify three studies since CINAHL, MEDLINE and PSYCHINFO were launched that explore patient perspectives of the nurse-patient interaction.

3.3.4 Quality of the communication skills

The observed quality of doctor-patient communication is not encouraging. Ong et al (1995) find that doctors tend to use highly controlling behaviours (asking many questions, interrupting frequently, making decisions for patients), put forward tentative explanations (unequal levels of medical knowledge between patient and doctor) and institutionalised roles that are ascribed to doctor and patient. Generally, open-ended questions are seldom used, although their use has been found to be associated with more discussion of the psychosocial concerns of patients (Langewitz et al 2003). Interestingly, Williams S. et al (1998) conclude that doctors who use a more directing and dominant style, rather than a sharing style, elicit higher satisfaction from patients with acute organic illnesses, although the effect on patients with chronic or psychological problems is uncertain.

The communicative behaviour of doctors varies according to the socio-economic status of the patient (Willems et al 2005), and their communication style also changes according to the patient's own style. Patients from a lower social class seem to have less power to influence doctors' communicative behaviour during consultations. Willems et al (2005, p144) conclude that patients with a lower level of education are “doubly disadvantaged”. Apart from being passive during the interaction, their doctors often misinterpret their needs.

The observed quality is not any better in nurse-patient encounters. Nurses, although they view their relationships with patients as an important aspect of nursing care, in practice are found to be poor communicators (Caris-Verhallen et al 1997). In general, nurses' communication styles are found to be ignorers (neglecting cues and switching topics) and informers (giving inappropriate information and opinions) (Kruijver et al 2000a).

Caris-Verhallen et al (1997) suggest that nurses' communication behaviours with patients can be grouped into two types of communication behaviour: task-focused and socioemotional behaviour, which is similar to the literature on doctor-patient communication. Caris-Verhallen et al (1997) find that nurses' communication behaviour is often one-way. Reviewers repeatedly conclude that nurses use more blocking than facilitating communication and tend to exert power over their patients (Kruijver et al 2000a, Caris-Verhallen et al 1997, Jarrett and Payne 1995). Nurses tend to use distancing tactics and task-oriented behaviour in communicating with patients and their relatives (Kruijver et al 2000a). Thus, there appears to have been no progress since the pioneering work of Macleod Clark over two decades ago (1983), in which it was found that nurse-patient conversations were limited both in quantity and quality.

Kruijver et al (2000b) review 14 studies published between 1985 and 1998 on communication training programmes for nurses. Disappointingly, these evaluation studies show limited or no effects on nurses' skills with simulated patients and, in practice, on patient outcomes (for example, state of depression and anxiety). One of the explanations given for this is a negative work environment. This finding warrants further exploration with research designs that help understand the contextual factors.

Shattell (2004) identifies a consistent finding in the literature on the role of the nurse-patient relationship in nurse-patient interaction that patients find that nurses who are genuine, are not in a hurry, and who make themselves available contribute to a good relationship that forms the basis for a satisfactory encounter.

3.3.5 Methodological concerns

3.3.5.1 Research design

Quantitative designs have dominated the field, and most of the studies involve a small sample (Hulsman et al 1999). This raises the issue of the probability of type 2 error. Quantitative designs also do not allow an in-depth investigation of the contextual and holistic explanations for what takes place in the encounters (Simons and Elias 1994). The lack of longitudinal studies means that there has been inadequate investigation of changes in communication behaviour over time (Anderson and Sharpe 1991).

3.3.5.2 Analysis of the communication process

There has been inadequate description and analysis of the process of communication and the patient outcomes that the process can bring about. The major focus of research has been on provider behaviour, whereas patients' contribution (Shattell 2004) and environmental influences to the encounters have been neglected (Jarret and Payne 1995). The RCTs reviewed by Stewart (1995), although linking the communication process to patient outcomes such as pain and anxiety resolution, do not adequately describe the process characteristics for replication.

Cegala and Broz (2002) review 26 studies published between 1990 and 2001 on communication training programmes for doctors, and find that the studies report limited information about trained communication behaviour. They conclude that it is not possible to rely on the specificity of the communication skills detailed in these studies to develop training programmes.

Process evaluation is repeatedly suggested as the way forward to understand the dynamics between provider, patient and situational characteristics (Willems et al 2005, Caris-Verhallen et al 1999, Jarret and Payne 1995). Moreover, the investigation of education strategies, which often form the context within which communication takes place, has been rare (Stewart 1995, Anderson and Sharpe 1991).

3.3.5.3 Theoretical grounding

Most of the investigations reviewed lack a theoretical framework for organising the different communication skills to frame the research focus. It has been found that researchers often rely on vague references to the literature or broad philosophical principles to justify their selection of such skills for analysis (Cegala and Broz 2002, Roter et al 2001). Cegala and Broz (2002) identify a lack of sophistication in communication process research, and Willems et al (2005) call for the establishment of a uniform definition and classification of communication variables.

3.3.5.4 Observation methods and analysis frameworks

The investigation of the communication process has been made easy by technological advances in audio- and video-recording. However, although video-taping records both verbal and non verbal aspects of communication with real or simulated patients, the research literature suggests that the application of audio-taping is easier and less obtrusive (Hulsman et al 1999).

Although qualitative approaches to data collection and analysis have been emerging since the 1980s, and highlight the yield of rich contextual evidence, the dominant thrust of public health still directs researchers towards quantitative methods (Simons and Elias 1994). Analyses of the communication process have mainly employed quantitative methods using interaction analysis systems or observation instruments (Wilson and Childs 2002). Ong et al (1995) provide an account of twelve common interaction analysis systems published between 1979 and 1993 (see Appendix 3), and divide these systems into two main types: cure and care systems.

Cure systems capture task-focused behaviour, whereas care systems measure socioemotional behaviour. Ong et al (1995) regard the Roter Interaction Analysis System (RIAS, Roter and Larson 2002) to be an instrument that captures both types of behaviour. The RIAS was the most commonly used instrument (Hulsman et al 1999) in training programmes for doctor communication skills from 1985 to 1998.

Most studies in this field employ interaction analysis systems, and criticism has been leveled at the inherent weaknesses of such systems (for example, focusing on an a priori aspect of communication) and the inadequate exploration of the rationale for choosing one system over others. Some reviewers regard this approach to research to be atheoretical (Ong et al 1995, Roter et al 1988). Verhaak et al (1998) note that "communication research is at a stage of piecemeal engineering rather than the development of grand theories" (Verhaak et al 1998, pS4).

3.3.5.5 Provider communication and patient satisfaction

The link between provider communication and patient satisfaction are also under-researched areas. It is consistently concluded in the reviews that there is a problem with using quantitative instruments to measure patient satisfaction in relation to providers' communication style (Kruijver et al 2000b, Hulsman et al 1999). In the 14 studies (15 papers) published between 1985 and 1998 that evaluate communication skills training programmes for experienced physicians, Hulsman et al (1999) find that only four studies showed some improvements in some items of the satisfaction scales used. They observe that studies with no improvement had high baseline satisfaction levels amongst patients, and thus the satisfaction scores showed little variation.

A similar finding is observed by Kruijver et al (2000b), who review 14 studies published between 1985 and 1998 on communication training programmes in nursing care that aimed to identify the effects of such programmes on patient outcomes. They find that patient satisfaction as measured by quantitative instruments was positive and did not improve after training. In a systematic review of intervention studies that aimed to improve patients' communication with doctors, Harrington et al (2004) report that patient satisfaction was a common outcome, but few significant improvements could be found. It has been suggested that patient satisfaction is always high, which thus results in little variance in the scores (Kruijver et al 2000b). This raises an issue about the sensitivity and validity of using quantitative measures to assess patient satisfaction with nurses' communication skills.

3.3.6 Conclusion

An analysis of the literature reviews published between 1990 and 2005 identifies what is known in communication research. Such research usually makes provider's communication style the focus of investigation. Both nurses' and doctors' communication styles are generally found to be controlling and dominating, but despite this, patient satisfaction as measured by established scales is positive. Less well understood is patient's communication style and the influence of contextual factors on health encounters. The methodological issues identified in the reviews suggest that future studies need to:

1. Adopt a theoretical framework to guide the development of the research design, data collection and analysis.
2. Adopt a research design, such as a mixed design or longitudinal study, that allows the in-depth study of the dynamic between provider, patient and the contextual factors.
3. Examine both provider and patient perspectives.
4. Record the provider-patient interaction for analysis.
5. Adopt a theoretically based analysis framework that considers the whole interaction in addition to reducing it into a priori parts for attention.
6. Investigate the link between process characteristics and patient outcomes.
7. Explore patient satisfaction with qualitative methods of data collection.

3.4 Review of primary studies of provider-patient interaction in diabetes education

3.4.1 Search methods and an overview

Informed by the two analyses of literature reviews in the foregoing sections (3.2.4 and 3.3.6), this writer pays particular attention to several areas: the theoretical frameworks that guide the research process, the research design, the recording facilities and empirical description of the education process, the linkage between process characteristics (communication skills and education strategies, see Chapter One, Operational Definitions) and patient outcomes and provider and patient perspective of the education process.

Three selection criteria are therefore identified to focus the primary literature review on provider-patient interaction in diabetes education, with the purpose stated in Section 3.1. MEDLINE (1966 to April 2005) and CINAHL (1982 to April 2005) were searched using the keywords patient education and diabetes mellitus. Studies were selected if they met the following criteria: (1) being directed at or covering health provider-patient interaction in the context of diabetes education; (2) investigating interaction processes using observation techniques, interviews, or questionnaires; and (3) presenting at least some data on process characteristics (communication skills and education strategies). A manual search was also undertaken with all the references listed in the publications that were selected.

A total of 28 journal articles were retrieved, all of which report studies undertaken in the West. They were all published after 1988, which reflects the fact identified by the reviewers (3.2) that investigation of the process characteristics of diabetes education is rare. The small amount of studies that meet the search criteria suggests that the research attention to provider-patient interaction in diabetes education, although emerging in the mid 1980s, has proceeded slowly. Indeed, van Dam et al (2003), in conducting a systematic review in 2001 of provider-patient interaction in diabetes care, initially identified nothing with a keyword search and had to rely on a bibliography search.

This review excludes the oft-cited seminal work of Greenfield et al (1988) and Kaplan et al (1989) on patient activation programmes, which provide research evidence of the crucial role of provider-patient communication in patient outcomes. These two articles are excluded because they do not measure or report process characteristics. Three of the seven studies reviewed by Roter et al (2001) (3.3), Williams S. et al (1998), Langewitze et al (1997) and Greenfield et al (1988) that apply theoretical frameworks do not report any process characteristics, and thus are also excluded from this review. The other four studies (Kinmonth et al 1998, Anderson et al 1995, Street et al 1993, Rost et al 1991) meet the selection criteria.

The 28 articles can be logically divided into two categories. Seven professional training programmes detailed in 12 articles make up the first category, and the second category consists of 16 studies that investigate or include the interactions in the investigation.

3.4.2 Professional training programmes

Appendix 4 on the health provider-patient interaction in the context of diabetes education contains two tables that display the references and characteristics of the two categories of studies included in this review. One of the tables shows an overview of the 12 articles about the programmes (Adolfsson et al 2004, Cooper et al 2003a, King et al 2002, Doherty et al 2000, Pill et al 1999, 1998, Kinmonth et al 1998, 1996, Woodcock et al 1999, Anderson et al 1991, 1995, Arnold et al 1995). All of the retrieved studies were published between 1991 and 2005.

3.4.2.1 Trainees

All of the training programmes include nurses as the targeted trainees with one being developed solely for nurses (Cooper et al 2003a). Other health professionals covered included doctors, pharmacists and dieticians. Nurses are by number the greatest recipients of the training programmes, which reflects the growing attention to nurses as major providers of diabetes education (Hampson et al 1996, Street et al 1993).

3.4.2.2 Rationale for training

The rationale for the development of these professional training programmes is usually based on the assumption that the improvement of the quality of professionals' education competence leads to better self-management abilities amongst patients. The individual research teams of these seven programmes further elaborate the specific skills or principles that their programme aims that professionals should acquire.

3.4.2.3 Theoretical frameworks and programme development

Two main categories of theoretical frameworks were used to guide the design of the training programmes under review: patient empowerment (Adolfsson et al 2004, Anderson et al 1991, 1995, Cooper et al 2003a) and patient-centred care (King et al 2002, Doherty et al 2000, Pill et al 1999, 1998, Woodcock et al 1999, Kinmonth et al 1998, 1996). However, the characteristics of the skills to be acquired are not always detailed in the articles (Cooper et al 2003a, Woodcock et al 1999, Pill et al 1999, 1998, Kinmonth et al 1998, 1996).

3.4.2.4 Length

The length of the training programmes ranges from three hours (Pill et al 1998) to six whole days (Anderson et al 1991). Cooper et al (2003a) do not specify the length and intensity of the training, and Doherty et al (2000) report that their programme lasted for six months without stating the frequency and length of the meetings.

3.4.2.5 Research design

The research designs employed to investigate the programmes are mainly quantitative, with four programmes using RCTs (Cooper et al 2003a, Pill et al 1999, Kinmonth et al 1998, Anderson et al 1991) and one using pre-post comparison (King et al 2002). Kinmonth's team (1998) admit that an RCT may not be an appropriate design for this nature of investigation, citing the difficulty in controlling training and the consulting behaviour of nurses (Woodcock et al 1999). Two of the four RCTs (Cooper et al 2003a, Pill et al 1998) employed a qualitative component to explain the processes underlie the quantitative outcomes achieved by the training programmes. Pill et al (1998) specifically use a paralleled process study that aimed to throw light on what happens in the process of education. Two of the seven programmes employ qualitative methods as the only approach to evaluation (Adolfsson et al 2004, Doherty et al 2000). Adolfsson et al (2004) employ focus group interviews. The investigation of Doherty et al (2000) is unique amongst the seven programmes in employing a longitudinal (two years) qualitative study design.

3.4.2.6 Direct observation and taping facilities

Although all of the training programmes aimed to develop professionals' education competence, it is a surprise to find that four of the programmes include no direct observation of the actual provider-patient interaction in the process of education (Adolfsson et al 2004, Cooper et al 2003a, King et al 2002, Woodcock et al 1999, Kinmonth et al 1998, 1996). Amongst the programmes that include direct observation, two use audio-taping facilities (Pill et al 1999, 1998, Anderson et al 1995, 1991), and the other two use video-taping (King et al 2002, Doherty et al 2000). King et al (2002), although using direct observation, use surrogate patients only.

3.4.2.7 Coding methods and process characteristics

Three of the four programmes that include direct observation adopt self-developed quantitative coding systems to analyse the interaction data (King et al 2002, Pill et al 1999, 1998, Anderson et al 1995, 1991). Anderson et al (1995, 1991) developed a quantitative coding system to analyse counselling skills. The system adopts a 5-point rating scale that ranges from plus 2 to minus 2 to rate professionals' response to patients' expressions. Focusing on feelings or goals scores plus 2 and judging the patient scores minus 2. King et al (2002) use a self-developed system to code four areas of teaching skills: assessment, brainstorming, collaboration and direct instruction. The coding system of Pill et al (1998, 1999) focus on two areas: how often patients compared to nurses initiated a topic for discussion, and whether patients were allowed to select what they were prepared to do if a specific target was set. These coding systems, although beneficial, restrict the analysis to only parts of the education process. In addition, the programmes provide minimal description of the interaction characteristics (King et al 2002, Pill et al 1999, 1998, Anderson et al 1995, 1991, Arnold et al 1995,). Anderson et al (1991) report a methodological issue about the coding of tapes with real patients, in that it is difficult to match precisely the coding system, as the real encounters usually include long responses that involved many sentences.

Doherty et al (2000) use the discourse analysis techniques to focus on the content of the interaction of the whole consultation. Their analysis reveals a striking difference in the way nurses responded to patients who were deemed to have poor diabetic control. The consultation typically began with a reference to the glycaemic results, and then put emphasis on the patients' responsibility to maintain normal blood glucose levels to avoid long-term complications. There was minimal exploration of the patients' feelings and perceptions of the factors involved in maintaining normal glucose levels. The nurses often confronted patients about what brought about instances of poor control, and asked them to try harder. The patients often acted defensively or occasionally became aggressive. This finding extends the understanding of how nurses communicate differently with individual patients with different levels of glycaemic control.

3.4.2.8 Sustainability of the learned approach

The findings of five of the training programmes (Adolfsson et al 2004, Cooper et al 2003a, Doherty et al 2000, Pill et al 1999, 1998, Woodcock et al 1999, Kinmonth et al 1998, 1996) consistently demonstrated that trainees gained good knowledge and skills, and developed initially favourable attitudes towards the learned approach. However, after a period of practice of one to two years, most of the trainees reverted to the traditional approach. A major finding of Kinmonth's team (1998) is that the use of patient-centred techniques amongst trained nurses diminished towards the end of the first year as demonstated by the self-reports of the patients and nurses. Although the nurses initially applied the learned skills and techniques to facilitate patients' choice and autonomy, subsequently they applied more of the traditional ways of education, such as advising and informing (Cooper et al 2003a, Woodcock et al 1999).

3.4.2.9 Qualitative methods and insights

The studies that include qualitative components or use qualitative methods provide some insight about the non-sustainability of the learned approach. Adolfsson et al (2004) use the focus group method to collect data, from which a central theme of "conflicting roles" emerged. Although the doctors and nurses developed a favourable attitude and knowledge of the empowerment approach, during implementation they found the shift to the role of facilitator difficult. In the traditional approach to diabetes education, they acted as experts and felt secure, but as facilitators they perceived a lack of support in the education process. The support that they identified included that from the family practice and from a supervisor in direct connection with the diabetes education programme.

Pill et al (1998) adopt a parallel process evaluation with an RCT. Nurses' perceptions of the interaction were obtained during and after the trial. Nurses found that they faced a dilemma about the extent to which they needed to bear responsibility for patients making an informed choice that deviated from conventional biomedical wisdom, that is, for non-compliant behaviour (Pill et al 1999).

3.4.3 Studies

Appendix 4 contains a table that gives an overview of the 16 studies on provider-patient interaction retrieved for the review (Williams et al 2005b, Heisler et al 2002, Koopman-van der Berg and van der Bijl 2001, Stamler et al 2001, Thorne and Paterson 2001, Whittemore et al 2001, Freeman and Loewe 2000, Gagnayre et al 2000, Bartz 1999, Sarkadi and Rosenqvist 1999, van Dulmen et al 1997, Hampson et al 1996, Base and McLeod 1995, Street et al 1993, Rost et al 1991, Price 1989). All of the retrieved studies were published between 1989 and 2005.

3.4.3.1 Providers

Four of the studies on provider-patient interaction had nurses as the sole providers (Koopman-van der Berg and van der Bijl 2001, Stamler et al 2001, Whittemore et al 2001, Street et al 1993), another seven focused on doctor-patient interaction (Williams et al 2005b, Heisler et al 2002, Gagnayre et al 2000, Bartz 1999, van Dulmen et al 1997, Hampson et al 1996, Rost et al 1991), and the remaining five focused on a cluster of health providers, including nurses (Thorne and Paterson 2001, Freeman and Loewe 2000, Sarkadi and Rosenqvist 1999, Base and McLeod 1995, Price 1989). One study (Bartz 1999) did not have diabetes education encounters as the focus, although doctor-patient interaction was audio-taped to explore how a community-based family doctor who was trained in the biopsychosocial model applied this understanding to interactions with patients of different cultural backgrounds.

3.4.3.2 Research design

Seven of the 16 retrieved studies adopt a quantitative design (Heisler et al 2002, Gagnayre et al 2000, van Dulmen et al 1997, Hampson et al 1996, Street et al 1995, Rost et al 1991, Williams et al 2005b), two of which are RCTs (Williams et al 2005b, Rost et al 1991) and two of which employ a longitudinal design to trace the change of communication styles between doctors and patients across successive encounters (van Dulmen et al 1997, Hampson et al 1996). Five of the studies employ a qualitative design (Thorne and Paterson 2001, Whittemore et al 2001, Freeman and Loewe 2000, Bartz 1999, Price, 1989), and another four are of mixed design (Koopman-van der Berg and van der Bijl 2001, Stamler et al 2001, Sarkadi and Rosenqvist 1999, Basa and McLeod 1995).

Two of the studies of mixed design (Koopman-van der Berg and van der Bijl 2001 Freeman and Loewe 2000), allow an identification of discrepancy between the two data-sets, because the self-reports of providers on the behaviour displayed during the education process is validated by the actual taped process. This highlights the benefit of triangulation.

3.4.3.3 Theoretical frameworks

Eight out of the 16 studies have a theoretical framework to guide the design. Three of the studies adopt the construct of patient activation (Williams et al 2005b, Street et al 1993, Rost et al 1991) and one (Heisler et al 2002) adopts a framework related to activation (participatory decision-making framework). One of the eight studies adopts the theory of self-efficacy (Koopman-van der Berg and van der Bijl 2001) and one utilised an enablement framework (Stamler et al 2001). Two of the studies (van Dulmen et al 1997, Hampson et al 1996) do not explicitly state the theoretical framework, but the data collection and analysis rely on the patient-centred construct of Roter et al (2001).

3.4.3.4 Sample size

Apart from the study of Heisler et al (2002), which includes 431 patients, and that of Williams et al (2005b), which includes 232 patients, the studies utilised small samples. The sample sizes range from one doctor and 18 consecutive patients (three episodes of encounters each; van Dulmen et al 1997) to 11 doctors and 44 of their patients (four consultations from each doctor; Gagnayre et al 2000). The study with 431 patients (Heisler et al 2002) does not make any direct observation on the doctor-patient interaction, and use only two scales to measure patients' perceptions on doctors' participatory decision-making and communication style.

3.4.3.5 Direct observation

Eleven of the studies claim to have made direct observation of the interactions. Ten of the eleven studies have a small sample size, except that of Williams et al (2005b), who audio-taped 151 pairs of pre-post intervention patient-doctor consultations. Three of the eleven studies use video-taping to record the interaction (Freeman and Loewe 2000, van Dulmen et al 1997, Price 1989), another six employ audio-taping (Williams et al 2005b, Whittemore et al 2001, Bartz 1999, Hampson et al 1996, Street et al 1993, Rost et al 1991), and the other two use observers (Koopman-van der Berg and van der Bijl 2001, Basa and McLeod 1995).

3.4.3.6 Analysis

In relation to the interaction data analysis, six of the 16 studies used quantitative methods. Two of the six studies use RIAS (van Dulmen et al 1997, Hampson et al 1996), and yield findings of the whole encounter, because RIAS allows coding of every utterance of the encounter. This is the strength of these studies over the study of Rost et al (1991) and Street et al (1993), which concentrate on certain types of pre-determined communication behaviour. However, this very strength is also the weakness of these studies. When the whole encounter is coded according to the nature of each utterance it is deconstructed into fragments according to the coding mechanisms. Although this system of analysis is reliable, Hampson et al (1996) find it to be limited in being able to address important features of health education, such as the extent to which behavoural and motivational strategies are used.

Rost et al (1991) developed a coding system and count the frequency of patients' utterances in two areas only: information seeking and decision-making behaviour. Street et al (1993) adopt the coding system of Rost et al (1991), and add to it three categories of nurse behaviour, including controlling, informative and patient-centred. Williams et al (2005b) rate their patient-doctor consultations using a three-item scale developed to investigate the extent of patient participation in consultations and diabetes management. Koopman-van der Berg and van der Bijl (2001) developed a semi-structured checklist with 15 self-efficacy-enhancing strategies. Although this development is theory driven, Koopman-van der Berg and van der Bijl (2001) do not explain the use of the list in the observations.

The other five studies either use interpretive analysis (Whittemore et al 2001, Freeman and Loewe 2000, Bartz 1999, Price 1989) or compare the interactive process with a national standard for diabetes education (Basa and McLeod 1995). Although these five studies yield more interesting findings using qualitative data analysis methods, they suffer from focusing or reporting only parts of the education process. The study that compares the process with the national standard does not describe the process, and simply concludes that the interaction is found to follow the standard (Basa and McLeod 1995).

3.4.3.7 Patient outcomes

Ten of the 16 retrieved studies utilised patient outcomes to identify the effect or impact of the provider-patient encounters (Williams et al 2005b, Heisler et al 2002, Stamler et al 2001, Whittemore et al 2001, Sarkadi and Rosenqvist 1999, van Dulmen et al 1997, Hampson et al 1996, Basa and McLeod 1995, Street et al 1993, Rost et al 1991), but one of the ten does not report the measured outcomes (Hampson et al 1996).

The most common outcome is metabolic control. One of the studies (Whittemore et al 2001) measures fasting blood sugar levels and five (Williams et al 2005b, Sarkadi and Rosenqvist 1999, Basa and McLeod 1995, Street et al 1993, Rost et al 1991) measure HbA1c levels. Table 2 shows the pattern of the changes of HbA1c levels in the five studies. Of interest is that only two of the studies compare HbA1c levels at baseline and at 12 months. The findings echo the conclusion of the reviews analysed in Section 3.2.2 that there are issues surrounding the sustainability of glycaemic control over time. The next most common outcome is patient satisfaction. Three studies adopt a scale for this measurement (Heisler et al 2002, van Dulmen et al 1997, Rost et al 1991). Table 3 below shows the pattern of patient satisfaction in the three studies. Although patient satisfaction is high across the three studies, only one study compares satisfaction outcomes between the experimental and control groups, and find non-significant difference. This again highlights the issue of questionable validity of patient satisfaction measures (3.3). Adherence to self-management behaviour is measured in two of the studies (Heisler et al 2002, Whittemore et al 2001). Outcome measures used in only one study include the understanding of self-management behaviour (Heisler et al 2002), quality of life (Basa and McLeod 1995), recall (Rost et al 1991), mastery of stress (Stamler et al 2001) and perceived physical limitation (Rost et al 1991).

Table 2

Changes in HbA1c levels following provider-patient interaction in diabetes education

Study	Design	Comparing baseline and 4 month data	Comparing baseline and 6 month data	Comparing baseline and 12 month data	Comparing experimental and control groups
Williams et al 2005b	RCT	Not measured	Improved	Improved	Non-significant
Sarkadi and Rosenqvist 1999	Pre-post comparison	Not measured	Improved	Reverted to baseline	Not measured
Basa and McLeod 1995	Pre-post comparison	Not measured	Improved	Not measured	Not measured
Street et al 1993	Pre-post comparison	Improved	Not measured	Not measured	Not measured
Rost et al 1991	RCT	Improved	Improved	Not measured	Non-significant

Table 3

The pattern of patient satisfaction following provider-patient interaction in diabetes education

Study	Patient satisfaction	Comparing experimental and control groups
Stamler et al 2001	High	Not measured
van Dulmen et al 1997	High	Not measured
Rost et al 1991	High	Non-significant

3.4.3.8 Observation methods, analytical frameworks and process characteristics

An analysis was undertaken to discern from the identified studies whether the observation methods and analytic frameworks employed in the provider-patient interaction have any bearing on the empirical description of the process characteristics. It is found that the five studies that do not include direct observation of provider-patient interaction (Heisler et al 2002, Stamler et al 2001, Thorne and Paterson 2001, Gagnayre et al 2000, Sarkadi and Rosenqvist 1999) report limited process characteristics. Moreover, the characteristics are self-reported data, and suffer from a lack of objective data of the actual process for validation.

It is also found that the two studies that include direct observation of provider-patient interaction by means of an observation guide (Koopman-van der Berg and van der Bijl 2001, Basa and McLeod 1995) report limited process characteristics. The major weakness of these two studies is that they do not describe or provide an analysis of what actually happened in the nurse-patient encounters and the interaction process, which may be in part due to the inherent features of using structured observation guides.

The four studies that include direct observation and use content/interpretative analysis as the data analysis method (Whittemore et al 2001, Freeman and Loewe 2000, Bartz 1999, Price 1989) yield rich data on the contextual features, and one of the studies (Freeman and Loewe 2000) provides some interesting findings on the dynamics in doctor-patient interactions. Although content/interpretative analysis yields rich data, the studies generally provide inadequate descriptions of the interaction and its analysis in depicting the process characteristics of the education process.

The two longitudinal studies that include direct observation (van Dulmen et al 1997, Hampson et al 1996) and utilised RIAS as the interaction data analysis framework yield rich data on the communication skills of providers. van Dulmen et al (1997) argue that observing only one episode of an education encounter is inadequate. Hampson et al (1996) also argue for the need to study successive consultations to develop a clearer picture of communication in diabetes care. A clear delineation of the communication styles is reported by means of descriptive statistics of the communication variables of RIAS. However, a major omission is the lack of attention to education strategies.

The other three studies (Williams et al 2005b, Street et al 1993, Rost et al 1991) are related to the use of the activation programme. Although using an activation programme has been found to have an effect on patients' involvement and participation in provider-patient encounters, the main limitation of these studies is the lack of empirical description of the activation programmes.

It is concluded that direct observation using content or interpretive analysis and a reliable analytical scheme for the process characteristics yields the richest data on communication skills. A major omission, however, of all the studies is the systematic investigation of education strategies.

3.4.3.9 Perceptions of the process characteristics

Only a few of the studies explored patients' and providers' perceptions of the process characteristics. Thorne and Paterson (2001, p86) reported that patients found only a few "enlightened and experienced specialists" who were knowledgeable and confident enough to regard patients as equal partners in making self-management decisions. Sarkadi and Rosenqvist (1999) report that patients felt positive about the education programme, although the elements of the programme that contributed to their perceptions are not explored. Koopman-van der Berg and van der Bijl (2001) include in their study two interviews with nurses about their experience with enhancing patients' self-efficacy. However, the researchers do not report the data. Bartz (1999) interviews a doctor who provided education to native American patients. Although the doctor could articulate a sophisticated biopsychosocial approach to practice, she viewed her actual interactions with patients as "imbued with misunderstanding, mistrust, and disconnection" (p601), which she attributed to her inadequate sensitivity of patients' cultural practices. The link between process characteristics and achieved outcome is rarely explored from the patient and provider perspective in the studies.

3.4.4 Conclusion of the literature review

3.4.4.1 What is known

3.4.4.1.1 Patient perceptions and outcomes

This review (3.4.2 and 3.4.3) shows that when doctors invite patients to participate in their own diabetes care and provide good communication, patients demonstrate better self-management outcomes (understanding and adherence; Heisler et al 2002). Diabetes education classes provided by nurses may act as an enabling factor in patient self-management, and some patients may demand more quality time with nurses (Stamler et al 2001).

Patient satisfaction with the provider-patient interaction as measured by scales is usually high (Stamler et al 2001, van Dulmen et al 1997, Rost et al 1991), but the scales may be insensitive to pre-post changes (van Dulmen et al 1997, Rost et al 1991) due to high base-line values.

Patients who have gone through an activation programme (one that activates two aspects of participation: information seeking and decision-making) usually speak longer and ask more questions of their doctors in a consultation (Rost et al 1991, Williams et al 2005b). This finding is consistent with two seminal studies that use activation programme (Greenfield et al 1988, Kaplan et al 1989). However, Rost et al (1991) and Williams et al (2005b) are unable to identify any corresponding effects on HbA1c levels between experimental and control patients. This has implications for the methodological concerns discussed in the next section.

3.4.4.1.2 Communication styles and focus of providers

Most health providers, including doctors (Thorne and Paterson 2001, Bartz 1999) and nurses (Street et al 1993), are controlling in provider-patient encounters. Doctors generally speak for the majority of the time in consultations (van Dulmen et al 1997, Hampson et al 1996). The topics most frequently discussed include diet, weight loss and monitoring of blood glucose, and the least-discussed topics include stress, footcare, smoking and drinking habits (Hampson et al 1996). Doctors mainly give information about the techniques and importance of keeping diabetes under control (Freeman and Loewe 2000), and ask patients questions mainly to check their factual knowledge (Thorne and Paterson 2001). The majority of utterances that doctors make are task-focused (van Dulmen et al 1997).

Nurses, although comparable in communication style with doctors, are shown to be less controlling (Street et al 1993). However, nurses have also been found to use verbal persuasion to impose self-management behaviour (Koopman-van der Berg and van der Bijl 2001), to control rather than facilitate (Street et al 1993) and to teach the topic of body symptom monitoring less (less than 50% of the encounters; Whittemore et al 2001). The primary function of diabetes education centres (Basa and Mcleod 1995) indicates that medical management takes priority over education.

An analysis of the nurse-patient interactions described in the seven training programmes shows that most providers, including nurses, are constrained by the biomedical model (Adolfsson et al 2004, Cooper et al 2003a, Doherty et al 2000, Pill et al 1999, Woodcock et al 1999). Although the nurses who participated in the programmes initially applied the learned skills and techniques to facilitate patients' choice and autonomy, they subsequently reverted to the traditional way of educating of advising and informing (Cooper et al 2003a, Woodcock et al 1999). They reported role conflicts (Adolfsson et al 2004), and worried about the extent of their accountability in patients' metabolic outcomes (Pill et al 1998). Nurses are found to respond differently to patients with poor glycaemic control (Doherty et al 2000).

3.4.4.1.3 Changes over successive encounters

Although the literature review shows that there is not much difference in terms of communication styles between individual providers, including doctors (van Dulmen et al 1997) and nurses (Street et al 1993), there is much demonstrated variability between providers and individual patients (van Dulmen et al 1997, Street et al 1993).

In addition, there is considerable difference in terms of the focus of each of the successive encounters. An analysis of the three taped successive consultations in the study of van Dulmen et al (1997) showed that the first consultation focused on building an effective doctor-patient relationship, the second focused on discussing treatment matters and the third focused on addressing psychosocial issues. Another study by Hampson et al (1996) that examines two successive doctor consultations shows that both communication styles and the content of the doctor-patient interaction varied considerably from visit to visit.

3.4.4.1.4 Validity of self-reports

Health professionals' self-reporting on the interaction characteristics is revealed to be of questionable validity. Doctors in the study of Freeman and Loewe (2000) expressed the importance of taking into consideration the multiple biopsychosocial factors that hinder patients' self-management. However, in the observed practice, the doctors focused entirely on managing blood glucose control. Similarly, Koopman-van der Berg and van der Bijl (2001) find that nurses reported using many strategies focused on developing patients' self-efficacy, but the observation data show that they used verbal persuasion most frequently. Findings such as these have implications for the methodological concerns discussed in Section 3.4.4.3.

3.4.4.2 What is not well understood

3.4.4.2.1 Education strategies

The review shows that none of the 23 studies (nested in 28 articles) directly describe or assess providers' use of education strategies in the encounters. Most of the published work investigates only the communication styles of providers in diabetes education. For example, van Dulmen et al (1997) and Hampson et al (1996) use RIAS and Street et al (1993) applies a self-devised coding scheme. The work of Koopman-van der Berg and van der Bijl (2001) may be regarded as an attempt to map the use of self-efficacy-enhancing strategies, which are central to the empowerment model of health education, but this study is limited by the quantification of the observations by counting the frequency of the strategies used, instead of observing how they were used and their impact on patients.

Another example is the study of Stamler et al (2001), which finds that patients had a range of mastery scores (high scores meaning a high mastery of diabetes self-management), and that those with low scores requested more individual time with the nurse. Unfortunately, the researchers do not identify the process characteristics that contributed to these outcome findings, which may be due to the lack of direct observation of the nurse-patient interaction.

This writer believes that only five of the 23 retrieved studies can be considered to examine some aspects of the use of education strategies in education encounters (King et al 2002, Koopman-van den Berg and van der Bijl 2001, Pill et al 1999, 1998, Bartz 1999, Anderson et al 1995, 1991). Apart from one study (Bartz 1999), they employ a self-developed coding system to examine specific elements of education strategies. Although these studies successfully analyse the use of certain education strategies, including self-efficacy, empowering counselling skills, specific teaching skills and facilitating goal achievement, they do not examine systematically the use of a possible range of education strategies.

This review also shows that the three studies (Williams et al 2005b, Street et al 1993, Rost et al 1991) that investigate the effectiveness of an activation programme on patients' participation typically missed the opportunity to investigate the education strategies used in the activation programme. The RCTs of Rost et al (1991) and Williams et al (2005b) fail to replicate the two previous studies (Greenfield et al 1988, Kaplan et al 1989) in obtaining better HbA1c levels in experimental patients. Williams et al (2005b) speculate that the research assistants may have been less effective than those that carried out the previous work. This highlights the importance of examining the education process directly.

3.4.4.2.2 Patient contributions and contextual factors

Although much is known about the communication style of providers, there is minimal understanding of the communication style of patients (Whittemore et al 2001, van Dulmen et al 1997, Hampson et al 1996). Whittemore et al (2001) caution that the literature provides inadequate description of how patients contribute to the communication process in diabetes education encounters.

Moreover, although this review shows that the studies find little difference in terms of communication style between providers but a great difference between providers and individual patients (van Dulmen et al 1997, Street et al 1993), what has not been well researched is patients' characteristics or factors that contribute to this finding.

Patients with high HbA1c levels tend to express more negative emotions in the nurse-patient interaction (Street et al 1993). Pill et al (1999) use discourse analysis and find some interesting data about nurses' communication behaviour that reveals a striking difference in the way nurses respond to patients deemed to have poor diabetic control. Although this finding extends the understanding of how nurses communicate differently with individual patients with different levels of glycaemic control, this area has not been well researched.

The final area that has not been well researched is the contextual factors that influence diabetes education, which may include the interrelationship between providers' clinical environment, patients' knowledge, and the philosophy about health and illness of both parties. Bartz (1999) suggests studying the interrelationship of these factors to understand their impact on provider-patient interaction. Doherty et al (2000) postulate that contextual factors, such as a biomedically-oriented organisational culture, have an impact on providers' practice and subsequently on patient outcomes. This impact is not well understood.

3.4.4.2.3 Perceptions of patients and providers

Although the literature review shows that when providers are perceived to invite participation and provide good communication on diabetes care, patients usually demonstrate better outcomes (Freeman and Loewe 2002, Heisler et al 2002, Street et al 1993), why this is so has not been explored from the patient and provider perspective. Freeman and Loewe (2002) find that the need to achieve "control" is always mentioned in doctor-patient interactions, but the concept of "control" may differ between both parties.

It is known that patients require various kinds of professional support during the disease trajectory of diabetes (Thorne and Paterson 2001), but what is unknown is the kind of support that is appropriate at given stage of the trajectory. Bartz (1999) argues that providers' theoretical orientation towards patient education may influence their practice. Exploring both patient and provider beliefs and perceptions of diabetes encounters could advance the understanding of the education process.

3.4.4.2.4 Nurse-patient interaction

The seven training programmes had nurses as their trainees with one (Cooper et al 2003a) being developed solely for nurses. Four out of the 16 studies in this review had nurses as the sole providers of diabetes education or communication. It is observed that most of the studies had doctors as providers, yet it is nurses that actually provided most diabetes education (Hampson et al 1996). More research on nurses should therefore be conducted to extend understanding and improve practice.

3.4.4.2.5 Difficulties in making a paradigm shift

The findings of the studies that examine training programmes on provider-patient interaction consistently point to the non-sustainability of learned skills that pertain to patient empowerment or activation (Adolfsson et al 2004, Cooper et al 2003a, Doherty et al 2000, Kinmonth et al 1996, Kinmonth et al 1998, Woodcock et al 1999, Pill et al 1999, Pill et al 1998). Adolfsson et al (2004) note that although empowerment was introduced as an approach to patient education in the 1990s, health professionals may not have successfully implemented this approach, because it requires a different set of roles. They outline from the literature a series of roles, including enabling patients to express their feelings, explore problems, set their goals, develop solutions to their problems, make informed choices and discover their own capacity to take control and responsibility for their diabetes and its management. In a nutshell, they observe that a successful paradigm shift to the adoption of this approach "requires a change in the healthcare system to a culture where the patients are treated as experts in living with diabetes and the providers act as facilitators" (Adolfsson et al 2004, p319). The providers' dilemma reported by Adolfsson et al (2004) and Pill et al (1999) suggests that further research to understand the difficulties in clinical practice is needed.

3.4.4.3 Methodological concerns

3.4.4.3.1 Research design, sample size and interaction data analysis

Most investigators do not use direct observation to investigate the education process in a natural setting, and a pre-post encounter quantitative design is the mainstream research design. However, this design and the techniques employed are unable to address the relationship between contextual factors and patient outcomes (Bartz 1999), which restricts attention mainly to communication skills. Regarding the techniques employed to analyse interaction data, various coding systems have been developed (Ong et al 1995). Communication behaviour is generally categorised into care and cure systems (2.1). RIAS (Roter and Larson 2002) is considered to be an instrument that captures the behaviour of both systems for both providers and patients, and because of this and its reliability has been employed in two studies on doctor-patient interaction in diabetes care and has yielded rich data (van Dulmen et al 1997, Hampson et al 1996).

Using RIAS has the strength of locating and adding findings within the body of extant knowledge. However, when the whole encounter is coded according to the nature of each utterance, it is deconstructed into fragments according to the coding mechanisms. The features of the education strategies employed are difficult to discern. It is believed that although the existing coding systems are helpful in unpacking communication skills and styles, analysing each encounter holistically would provide insights that have not before been uncovered.

A large sample size is usually required in studies that use quantitative designs to achieve statistical significance, yet this significance is achieved at the expense of in-depth understanding of the interaction process (Heisler et al 2002). It has been recognised that the depth of meaning and context provided by qualitative studies is frequently dismissed because of concerns about generalisability (Bartz 1999).

Although studies that use direct observation to collect interaction data and qualitative methods of data analysis generally have a small sample size, they yield huge amount of data that requires a long analysis process to do it justice. Generalisability through the employment of a "large" sample size is not the aim of qualitative research, as the purpose of generalisability is not statistical but analytical. Direct observation yields a better understanding of the interaction process (Harachi et al 1999), which may help unpack the "black box" (Ellis et al 2004, Elasy et al 2001).

A method for overcoming problems of adequate sample size, the depth of interaction data analysis and the questionable validity of self-reporting interacting behaviour is to use multiple data sources and data collection methods, including direct observation to enhance the rigor of the study (Yin 2003b). Indeed, mixed design and process evaluations yield rich data and help validation (Cooper et al 2003a, 2003b, Koopman-van der Berg and van der Bijl 2001, Freeman and Loewe 2000). Whittemore et al (2001) comment that diabetes education is a complex phenomenon, and suggest a multi-method design to be a cost-effective approach for evaluation.

Another limitation identified in this review is that although some studies used a qualitative approach to interaction data analysis, the understanding generated is limited due to methodological issues. The first issue occurs when the analysis frameworks do not focus directly on education strategies. The second is that usually thin raw interaction data are reported to substantiate the conclusions (Basa and McLeod 1995, Street et al 1993, Whittemore et al 2001), which makes it impossible to replicate good practice or avoid loopholes. The third is that these studies usually do not link the process to patient outcomes (Basa and McLeod 1995, Whittemore et al 2001), with the exception of the study of Street et al (1993). Future studies should refine the framework for interaction data analysis, report the data in-depth, link the process to the outcome, and explore patient perspectives on this linkage.

3.4.4.3.2 RCTs

Diabetes education activities typically employ multiple education methods (for example, group teaching, one-to-one counseling and printed materials), and involve influences from patients' internal and external environment (for example, perceptions of personal control and psychosocial constraints). The complexity of these interventions poses a challenge to RCT researchers in terms of controlling for type 3 errors, which are implementation problems. Apart from the problems of potential contamination and confounding, Britton et al (1998) assert that there are inherent difficulties with the external validity of RCTs of education interventions, as patients who participate in such trials are usually more motivated to live a healthier lifestyle. The use of blinding techniques for patient participants is not feasible because the education interventions involve patients' cooperation.

3.4.4.3.3 Theoretical frameworks

Although the employment of theoretical frameworks to guide the diabetes education process is increasing, researchers (Cooper et al 2003a, 2003b, Bartz 1999, Ong et al 1995, Roter 1988) agree that empirical work on provider-patient interactions pays insufficent attention to theoretical frameworks. This has led to criticisms of atheoretical selection of a framework for interaction data analysis. For example, although three of the seven training programmes were intended to develop providers' ability in patient empowerment (Adolfsson et al 2004, Cooper et al 2003a, Anderson et al 1995), the use of education strategies that belong to empowerment model is not directly examined in the interaction or from provider and patient perspectives. Moreover, the approach to selecting patient outcomes for diabetes education research appears to be professionally defined, rather than theoretically driven (Stamler et al 2001). Future analysis frameworks should make the theoretical underpinnings of education encounters the focus.

3.5 Review of primary studies on provider-patient interaction in health education

3.5.1 Search methods and an overview

Gaining insight into the research on provider-patient interaction in the general context of health education is deemed important, as the foregoing review of diabetes education (3.4) may have missed out education studies with well or sick people in other disease categories. This review focuses on studies that use audio or video recordings, as the foregoing review (3.4) indicates that the use of these recording methods allows a direct examination of the process of education. The function of this review is to identify additional information on what is known and not well understood, and the methodological concerns that may need to considered in this study.

A keyword search of two databases, MEDLINE and CINAHL, was employed using the terms patient, client, health, education, promotion, counselling, teaching, information, instruction, consultation, intervention, interaction, communication, conversation and encounter. Studies were selected if they met the criteria: (1) being directed at provider-patient interaction in clinical or health settings in which health education or promotion is a feature or focus, (2) observing the interaction process. A manual search was also undertaken with all references listed in the publications that were selected. The search covers studies published between 1990 and April 2005, because very few studies from before 1990 that meet the selection criteria could be identified.

Using the search method and the identified inclusion criteria, 18 studies were identified. However, nine of them (that use taping facilities) are reviewed in the foregoing section (3.4), which leaves nine studies nested in 14 articles. The limited number of studies indicates that recording the education process for examination is an understudied area, which echoes the findings of the foregoing review.

Appendix 5 on health provider-patient interaction in health interactions contains two tables that display the characteristics of the studies. Three of the 14 articles are about doctor-patient interaction (Sleath et al 1999, Makoul et al 1995, Wilson and McDonald 1994), and 11 articles are on nurse-patient interaction (Aminoff and Kjellgren 2001, Baggens 2001, Kendall 1993, Kristjanson and Chalmers 1990, MaCleod Clark et al 1990), of which six are related to the same study (Kettunen et al 2002, Kettunen et al 2001, Poskiparta et al 2000, Kettunen et al 2000, Poskiparta et al 1999, Poskiparta et al 1998).

All of the identified studies come from the West: two from North America and the rest from Europe. To record the education process, six studies use audio-taping (Aminoff and Kjellgren 2001, Baggens 2001, Sleath et al 1999, Wilson and McDonald 1994, Kendall 1993, Macleod Clark et al 1990) and three utilised video-taping (Kettunen et al 2002, Makoul et al 1995, Kristjanson and Chalmers 1990).

3.5.2 Conclusion

3.5.2.1 What is known

3.5.2.1.1 Communication styles and focus of providers

The research shows that in health education encounters, as with diabetes education, nurses (Baggens 2001, Poskiparta et al 1998, Kendall 1993, Kristjanson and Chalmers 1990, MaCleod Clark et al 1990) and doctors (Sleath et al 1999, Makoul et al 1995) dominate and control the interactions.

This review identifies three further pieces of findings. The first is that nurses regard developing a helping relationship as important and do so by "creating common ground" (Kristjanson and Chalmers 1990, p218), which is characterised by identifying a health or illness related issue for discussion. The topics that nurses select for discussion are, however, more related to the physiological than the psychosocial (Baggens 2001).

Some education strategies are identified in the interactions, including assessment, teaching, demonstration, anticipatory guidance and the provision of feedback (Kristjanson and Chalmers 1990). On rare occasions, nurses adopt empowering strategies, such as power sharing and listening (Kettunen et al 2001).

Nurses' controlling behaviour, although not new, appears to be reinforced by the structure of the healthcare setting, such as the structured education programme (Baggens 2001) and the clinic routine (Kristjanson and Chalmers 1990). It has been suggested that the care context (clinic or client's home) where the interaction takes place may influence which party is in control of the purpose and the time spent in different phases of the meeting (Kristjanson and Chalmers 1990).

3.5.2.1.2 Patient contributions

Patients' contribution to the interaction process, which has not been well studied in diabetes education, is explored in health or patient education studies. Although the power asymmetry is obvious, patients redirect the flow of interaction to topics that they regard as important using tactics similar to those of nurses, such as interrupting and questioning (Kettunen et al 2002). Patients bring to the encounters a multitude of communicator styles that range from quietly assenting to being emotionally expressive.

3.5.2.2 What is not well understood

3.5.2.2.1 Education strategies

Although the retrieved nine studies nested in 14 articles contributed to the understanding of the communication aspect and focus of nurse-patient interaction in education encounters, as with the diabetes education research (3.4) the studies provide very minimal analysis and description of education strategies or the theoretical approach to education. Only one study links the education process with patients outcome (Macleod Clark et al 1990), but does not examine the process characteristics that contribute to these outcomes. Two additional areas are identified in the following for further exploration.

3.5.2.2.2 Satisfaction with the controlling behaviour of nurses

Although nurses are often dominating and controlling, it is interesting to note that patients' satisfaction with the information given is usually positive (Makoul et al 1995), and patients acknowledge that nurses are approachable, knowledgeable and supportive professionals (Kettunen et al 2002, Kristjanson and Chalmers 1990). This area requires in-depth exploration.

3.5.2.2.3 Transferring knowledge to practice

Also deserving of further exploration is the fact that patients may suffer from difficulties in transferring self-management knowledge to daily living (Poskiparta et al 1998).

3.5.2.3 Methodological concerns

3.5.2.3.1 Taping interactions

A review of the nine studies nested in 14 articles raises some methodological concerns, most of which are similar to the concerns raised in the above review of diabetes education research (3.4). Recording the interaction provides accurate information for analysis, and the research evidence (Aminoff and Kjellgren 2001, Baggens 2001, Kristjanson and Chalmers 1990) suggests that audio- or video-recording does not interfere with the interaction. Although audio-taping contributes both verbal and nonverbal data on interactions, researchers generally (Kettunen et al 2002, 2001, Kristjanson and Chalmers 1990) encounter difficulties in capturing a comprehensive picture of nonverbal communication from a single video-camera, and thus mainly rely on the audio part for analysis.

3.5.2.3.2 Sample size and interaction data analysis

The studies on nurse-patient interaction usually have a small sample size for both the nurse and patient participants, the former ranging from 4 (Aminoff and Kjellgren 2001) to 19 (Kettunen et al 2002) and the latter ranging from 20 (Aminoff and Kjellgren 2001) to 68 (MaCleod Clark et al 1990). However, the studies of doctor-patient interaction have a comparatively bigger sample of doctor and patient participants, the former ranging from 16 (Wilson and McDonald 1994) to 39 (Makoul et al 1995) and the latter ranging from 271 (Makoul et al 1995) to 516 (Wilson and McDonald 1994).

This review identifies a smaller sample size of provider-patient interactions for the studies that use a qualitative analysis, for example 19 (Kristjanson and Chalmers 1990), 38 (Kettunen et al 2002, 5 – 45 minutes) and 68 (MaCleod Clark et al 1990, 4 – 45 minutes) episodes of recording. The three studies that utilised a simple set of issues have bigger sample sizes of taped interactions (Sleath et al 1999; 467, Makoul et al 1995; 271 episodes, Wilson and McDonald 1994; 516). One may argue that using a simple a priori method allows the analysis to do justice to the huge interaction data collected.

The analysis of interaction data generally falls into two major categories. Adopting a simple a priori method for counting the frequency of some aspects of the interaction (Sleath et al 1999, Makoul et al 1995, Wilson and McDonald 1994) or qualitative analysis (Kettunen et al 2002, Aminoff and Kjellgren 2001, Baggens 2001, Kristjanson and Chalmers 1990, MaCleod Clark et al 1990) to identify themes and categories, which are then compared with an evaluative template (Kettunen et al 2001, Poskiparta et al 1998, 1999, 2000, MaCleod Clark et al 1990). Using an evaluative template yields a rich and holistic description of the interaction, whereas a priori method allows coders to deal with a bigger sample of interaction data because of the focus on a few areas. Both categories of analysis have limitations and advantages. Using a simple a priori method allows the process of a huge interaction data-set, and the findings can be compared with previous studies, yet this method suffers from the reduction of the whole into fragments. The use of evaluative templates relies on theoretical frameworks, which guide not only the analysis but also the logic of the research. Findings thus generated can be compared with those of previous studies, and can enrich the development of a body of knowledge, but this method suffers from non-representative samples. Two of the studies do not use a priori method or an evaluative template, but rely on the conversation analysis of 62 interactions during home visits (Kendall 1993) and the content analysis of 19 nurse-client interactions (Kristjanson and Chalmers 1990), thus allowing an overall structure of health visiting (Kendall 1993) and community nursing encounters (Kristjanson and Chalmers 1990) to emerge from the data. These studies fill important gaps in the literature.

To conclude, the sample size of the interaction data should be carefully determined, and should be within a reasonable volume so as to do justice to the data when qualitative analysis is employed (Kristjanson and Chalmers 1990). Although small sample size is a problem for statistical generalisation, methodologists such as Patton (2002) and Yin (2003b) argue that if the purpose of the study is analytical generalisation, then the sample size should be viewed differently.

3.5.2.3.3 Multiple sources of evidence

Using multiple sources of evidence and multiple methods of data collection in provider-client interaction research appears to bear real fruit (Makoul et al 1995, Wilson and McDonald 1994, Kristjanson and Chalmers 1990), and to yield rich data from the actual interactions and provider and patient perspectives. It also allows cross validation.

3.5.2.3.4 Validity of self-reports

The benefit of recording the actual process for analysis (Wilson and McDonald 1994) cannot be overstated. The studies of Makoul et al (1995) and Wilson and McDonald (1994) highlight the danger and inaccuracy of relying only on medical records and doctors' and patients' account to determine the quality and content of provider-patient interactions, which underscores the importance of including a direct examination of the interactions.

3.6 Research on HK nursing practice

3.6.1 An overview

No HK study meets the selection criteria identified for the foregoing reviews of primary studies (3.4 and 3.5). Only four studies serve to provide some understanding of the state of HK nurses' health education work and communication skills.

3.6.2 Individual studies

Twinn and Lee (1997) employ a case study design to explore the practice of health education amongst HK nurses in acute care settings. The majority of the nurse-patient interactions, the data of which were collected by means of an observation guide, lasted for less than 3 minutes (with a range of 1 – 29 minutes). Nurses dominated the interaction, and focused on information giving and assessment. Patient interview data show that patients could not recall any experience of participating in health education. The findings from the nurse interview data show that nurses cited problems of a lack of knowledge and skills and being too busy to participate as reasons for the lack of health education, viewing it as an isolated intervention rather than an integral component of nursing care.

Shiu et al (1999) adopt an embedded case study design to evaluate the contribution of nursing to an interprofessional community-based rehabilitation team. The patient participants include 68 patients with cardiac disease, and the findings show health education to be a major focus of nursing activities. Patients and their carers valued nurses' educational input, and cited it as a positive influence on their daily life. Patients, whilst praising nurses' competence in interpersonal skills, perceived an unmet need to learn how to overcome the problems that arise from cardiac disease self-management. They requested more individualised care and quality time with nurses.

Chan and Wong (2000) undertook a survey with 517 health professionals, of whom 88% were nurses. Eight-five percent reported inadequate training in health promotion, and reported the top obstacle to health promotion work being patients paying inadequate attention to nurses' advice on a healthy lifestyle. They reported that the most effective method to prevent ill health was advice on smoking cessation. These findings indicate that nurses have an inadequate understanding of the concept of health promotion.

Arthur et al (1999) report an exploratory study in the context of mental health nursing that aimed to identify the therapeutic communication strategies used by experienced mental health nurses. The study shows that nurses perceive using client-focused, problem-oriented and situational-based communication strategies. These strategies described by nurses do not address the culturally specific nature of the problems, although the nurses see themselves as being culturally sensitive. This study raises a contentious area for exploration, that of the cultural sensitivity of HK nurses, who practice in a place where East meets West.

3.6.3 Conclusion

Findings from the four HK studies show that most HK nurses engage in an individualistic approach to health education and health promotion, as with their counterparts in the US and the

UK. Similar to the research in the West, there has been no description or analysis of the process characteristics in nurse-client interaction during diabetes education. Patients' and nurses' perceptions on the interaction process have also not been adequately explored.

The Chinese cultural practices of face saving (being self-sufficient and taking care of issues within the family) and respecting authority appear to be ingrained in the cultural context (Chen 2001, Cheng 1997, Gao et al 1996, Garenya and Hwang 1996) in which this study has been conducted. Western culture supports individual expression of ideas and democracy, whereas Chinese culture favours the virtues of submission, humility, tolerance and hierarchy (Chen 2001, Bond 1996, Legge 1971). The expectation that "healers have a parent's heart" (a Chinese proverb) may be a double-edged sword. Patients may appreciate health professionals who take on a parental role to make clinical decisions in the best interest of the patients. However, if professionals cannot meet patient expectations of being a caring parent, then patients may become frustrated and quietly adopt a face saving approach by not disclosing any disagreement in consultations or even avoiding health professionals (Shiu and Wong 2002, Chen 2001, Shih 1996). The adoption of the ideology and practice of the self-empowerment model may be different in HK because of Chinese cultural beliefs and values. It is therefore important to study how Chinese patients and Chinese health professionals perceive empowerment, and how it is facilitated in clinical settings in HK.

3.7 Summary

3.7.1 Current picture of provider-patient interaction in education activities

This chapter reviews and identifies the major issues and the research methods employed to investigate provider-patient interaction in diabetes care and health education encounters. This area has only recently begun to receive the attention it deserves with the main bulk of research remaining quantitative in nature. It is well documented that diabetes education has an effect on patients' self-management outcomes (Ellis et al 2004, Norris et al 2002). However the essence of diabetes education, which is the provider-patient interaction process, remains a "black box" (Elasy et al 2001, Fain et al 1999, Harachi et al 1999).

3.7.2 Implications for this study

In short, the gaps in the literature are as follows.

1. Research on provider-patient interaction in diabetes education has been mainly atheoretical, which has hindered the development of a body of knowledge.
2. Research on provider-patient interaction in diabetes education has been mainly quantitative, and pays inadequate attention to the process of education.

3. There have been few direct-observations or examinations of providers' communication styles and fewer still of patients' communication styles, and inadequate attention has been paid to the education strategies and theoretical underpinnings of practice.
4. Patient perspective has only occasionally been sought, and inadequate attention has been paid to the link between process characteristics and patient outcomes.
5. Provider-patient interactions in education encounters in a Chinese context have never been studied.
6. No published study, either internationally or in HK, has investigated the process of diabetes education in a natural clinical setting.

Filling these gaps may better enable nurses and other health professionals to advance the practice and theory of diabetes education. Therefore, the aim of this study is to evaluate the process of education in a nurse-led diabetes education centre in a HK Chinese context (see Chapter One, Research Question).

The implications for this study of the methodological issues highlighted in the foregoing analyses and reviews can be summarised as follows.

1. A theoretical framework should be adopted to guide the research design from data collection and analysis to interpretation of the findings.
2. A research design that employs mixed methods is required to investigate and triangulate evidence that helps to provide an understanding of the complexity of the dynamics between nurses, patients and contextual situations that may influence the education process.
3. Direct observation of successive encounters of nurse-patient interactions is required to empirically document diabetes education practice in a real-life setting.
4. The sample size of the observed nurse-patient interactions should be reasonable to do justice to the analysis of a huge amount of interaction data.
5. Taping facilities should be used to record the interaction. Audio-taping is found to be as adequate as, and less obtrusive than, video-taping.
6. The analysis of the interaction data, apart from being theory driven, should examine the contribution of both nurses and patients to the interaction. Special attention should be paid to the education strategies employed in addition to communication skills.
7. Patient outcomes that are meaningful to the theoretical framework that nurses adopt to guide the process of education should be measured and the process characteristics that are described should be able to illuminate whether the outcomes have been achieved.
8. Patients' perceptions of the outcomes achieved should be explored.
9. The influence of Chinese culture on the perceptions of empowerment should be examined.

Chapter Four - Theoretical Framework and Methodology

4.1 Introduction

This study adopts an embedded, single-case design to investigate the case – the education process for diabetes self-management in nurse-patient encounters. The purpose of this chapter is to explain this writer's philosophical orientation, the theoretical framework of the study, the choice of methodology, and the data collection methods.

4.2 Philosophical stance

This writer thinks of herself as a realist who subscribes to realism (Kazi 2003, McEvoy and Richards 2003, Connelly 2001, Pawson and Tilley 1997, Bhaskar 1978). The philosophical basis of realism is that science is concerned with a reality that exists independent of whether it has been observed. Miles and Huberman (1994, p4) adopt this philosophy and hold its basis to be as follows.

> "Social phenomena exist not only in the mind but also in the objective world – and some lawful and reasonably stable relationships are to be found among them. The lawfulness comes from the regularities and sequences that link together phenomena. From these patterns we can derive constructs that underlie individual and social life. The fact that most of those constructs are invisible to the human eye does not make them invalid".

This writer concurs with Miles and Huberman (1994, p4) that, epistemologically, realists "register and transcend these processes by building theories to account for a real world that is both bounded and perceptually laden and to test these theories in our various disciplines". Realism sees the need for creative model building and for extracting postulated mechanisms of models for empirical scrutiny (Kazi 2003, Proctor 1998), and it is in this sense that realism shares positivism's desire to produce causal explanations (Miles and Huberman 1994, Blaikie 1993). However, the method for extracting postulated mechanisms of models for testing differs from that of positivism, in that tests are adopted to account for the way in which different structures produce the observed events, rather than simply documenting their sequence or using deductive logic, as would a classical positivist (Proctor 1998, Guba and Lincoln 1994).

Causation, however, is fundamentally different from the concept of causal laws associated with positivism (Kazi 2003, McEvoy and Richards 2003, Connelly 2001). It is "a causal description" (Miles and Huberman 1994, p4) of how structures, mechanisms or processes produce the observed events. Realists agree with interpretivitists that knowledge is a social and historical product, and that understanding of facts come from theory (Kazi 2003), which thus affirms "the existence and importance of the subjective, the phenomenological, the meaning-making at the centre of social life" (Miles and Hubman 1994, p4).

Researchers that take a realist stance acknowledge that both subjective meanings and external structures may influence behaviour. In this sense, realism attempts to provide a balance between subjectivity (insider) and objectivity (outsider), between cause and effect and between value-free and value-laden theory, thus offering "a middle ground" orientation (Proctor 1998, p79). At methodological level, realism adopts useful approaches from both positivism and phenomenology, namely, "etic" and "emic" approaches (Tripp-Reimer 1996), and seeks to understand observable and unobservable entities that comprise reality.

This writer views phenomena (for example, the education process) as existing neither in a stable nor a value-free environment, as the positivist approach holds. Furthermore, internal (for example, the health status of patients and the professional preparation of nurses) and external (for example, time pressure) elements also have an impact on the experiences of individuals in addition to their perceptions, which thus renders a pure phenomenological stance problematic.

4.3 Theoretical Framework

4.3.1 A synthesis of two frameworks

> "A conceptual framework explains, either graphically or in narrative form, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them. Frameworks can be rudimentary or elaborate, theory-driven or commonsensical, descriptive or causal" (Miles and Huberman 1994, p18).

This writer has developed a theoretical framework for this study that serves two purposes: for the achievement of an analytical understanding of the components of the diabetes education process, and the creation of a basis for considering how what is unknown about the education process might be organised. The theoretical framework was developed from the literature review by synthesising two conceptual frameworks. The first is a tripartite conceptual analysis of the theoretical models of health education, and the second is a conceptual framework of the basic essence of an education encounter.

In reviewing the theoretical literature (see Chapter Two), this writer finds that the Tripartite Conceptual Analysis on the Theoretical Approaches to Health Promotion that was put forward by Tones and Tilford (2001) to be the most encompassing analysis. Accordingly, this writer has drawn from the work to create a tripartite conceptual analysis of the theoretical models of health education, which include the educational model, preventive model and self-empowerment model. The three models can be seen as "rival theories" (Yin 2003b, Tones and Tilford 2001), which is elaborated in Section 4.4.4.

In reviewing the research literature (see Chapter Three), this writer has developed a conceptual framework of the basic essence of an education encounter between a health professional and a patient. This conceptual framework outlines important elements that underlie the process of diabetes education to be examined in this study.

> The basic essence of an education encounter (a diabetes education process) between a health professional (nurse) and a patient involves more than communication skills. It involves the health professional's (nurse's) use of education strategies, theoretical underpinnings and an ideology. It goes beyond skills and strategies to include the roles and responsibilities of the health professional (nurse) and the patient, which arise from the experiences and expectations of both parties of the education encounter. The education process may build on the relationship between the health professional (nurse) and the patient. Such encounters take place in a healthcare setting (where the nurse and the patient encounter each other), the model of care in which may have an impact on the education process.

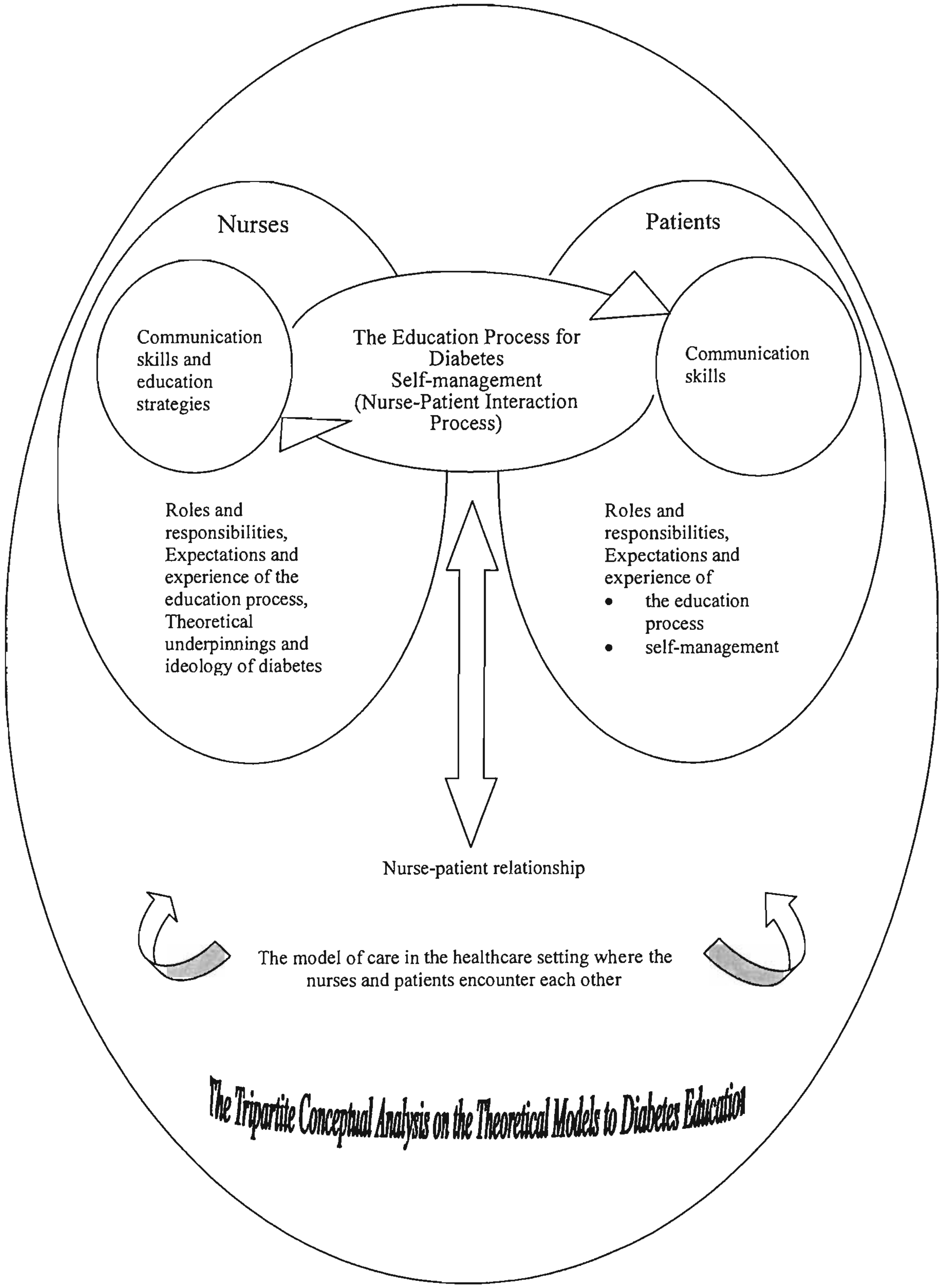
The synthesis of the two conceptual frameworks forms the theoretical framework for this study: the Tripartite Conceptual Analysis on the Theoretical Models of Diabetes Education. This framework, as illustrated in Figure 4, is used to guide the investigation and analysis of the essential elements of the nurse-patient interaction process. The theoretical framework suggests that the diabetes education process (the nurse-patient interaction process) can be examined through looking at the contribution of diabetes nurses and diabetic patients. The theoretical framework serves as a "descriptive theory" (Yin 2003a, p23) that defines the scope and depth of the research problem to be investigated rather than prescribing a cause-effect relation.

4.3.2 Theoretical propositions and three templates

Several theoretical propositions are derived from the theoretical framework, the function of which is to direct attention to elements that should be examined within the scope of the case study (Yin 2003a, 2003b). In addition to reflecting important theoretical issues, these propositions point to where to look for relevant evidence. For reasons of practicality and resource intensity, the literature on process evaluation suggests a "less is more" approach to data collection (Linnan and Steckler 2002, p9), and investigating only what the theory holds to be essential variables.

Figure 4

The theoretical framework



This writer has derived theoretical propositions (Yin 2003a, 2003b) from the Tripartite Conceptual Analysis of the Theoretical Models of Diabetes Education (the three theoretical models) to form three templates to examine specific evidence, using pattern matching logic, of the identified case (4.1). Table 4 gives a summary of these propositions, which are categorised into the following five major components.

1. Theoretical underpinnings and ideology adopted by nurses for diabetes education.
2. The roles and responsibilities of nurses and patients.
3. The education strategies and communication styles of nurses and patients.
4. The nurse-patient relationship.
5. The impact of the education process on patients' perceptions and outcomes.

The first component includes propositions on values and associated beliefs of diabetes nurses that underlie diabetes education, which are suggested to have an influence on the education process and in turn on patients' perceptions of the process and its outcome. The second, third and fourth components contain propositions about the characteristics of the education process, which are regarded to be process indicators of the theoretical model being used. The propositions on patient outcome are regarded as outcome indicators (Tones and Tilford 2001). The selection of the outcome indicators was informed by the literature, which suggests that understanding the dynamics of programme delivery can be best achieved through an assessment of both process and outcome indicators (Whitehead 2003a).

It is clear that a partly deductive approach to research is adopted here. This writer started by building a theoretical framework, extracted the theoretical propositions and then moved on to select the appropriate methods and sampling frame. Answers to the research question were developed both inductively and deductively from multiple triangulation (4.5.5). The prominent qualitative researchers Miles and Huberman (1994, p23) believe that:

> "Better research happens when you make your framework – and associated choices of research questions, cases, sampling, and instrumentation – explicit, rather than claiming inductive purity".

This writer does not make any claim of inductive "purity", although a qualitative approach was adopted as the dominant research method in this study. The realist philosophical orientation and choice of a case study methodology reflect this stance, which allows the flexibility to adopt both qualitative and quantitative methods of collection.

Table 4

A summary of the propositions in the three templates derived from the theoretical framework

Components	Educational Model	Preventive Model	Self-empowerment Model
Theoretical under-pinnings and ideology	Voluntarism: Upholding patients' freedom to choose, With knowledge and understanding people can make informed choice	Supreme position of medical knowledge: Adopting professional approved behaviour leads to the prevention of diabetes complications	Freedom to choose (voluntarism) is constrained by individual limitations and environmental factors. Enabling patients to have control over health requires a process that strengthens patients' personal capacity and creates supportive environments
Roles and responsibilities	Patient: Information seeker and decision maker Nurse: Information giver, Expert	Patient: Information receiver and adherent to it Nurse: Information giver, Adherence observer, Expert	Patient: Problem and resource explorer Nurse: Facilitator, Equal partner with patients
Education strategies and communication skills	Value-free approach of the nurse: No coercion, Value clarification, A balance between task-focused and socioemotional communication behaviour	Value-laden approach of the nurse: Use persuasion, Prescriptive, Task-focused communication behaviour	Non-judgemental approach of the nurse: No coercion, Value clarification, Explore patients' goals and problems, Develop patients' self-efficacy, Mobilise resources, A balance between task-focused and socioemotional communication behaviour
	Patients' use of communication skills shows control over the process	Patients' use of communication skills shows limited control over the process	Patients' use of communication skills shows control over the process

Relationship	Patients as active information seekers and nurses as expert providers	Patients as obedient receivers and nurses as experts prescribing self-management behaviour	Partnership
Impact on patients	1. Gain knowledge 2. Make self-management decisions independently 3. Improve HbA1c levels 4. Perceptions of enhanced control over the disease	1. Gain knowledge 2. Rely on nurses to make self-management decisions, compliance 3. Improve HbA1c levels 4. Perceptions of limited control over the disease	1. Gain knowledge 2. Make self-management decisions independently 3. HbA1c levels may improve 4. Diabetes-specific psychosocial self-efficacy should be enhanced 5. Perceptions of enhanced control over life and the disease

4.4 Methodology

4.4.1 Case study design

A case study design is adopted in this study. Yin (2003b), an experimental psychologist and the chief proponent and methodologist of case study design, offered a technical definition in the 1980s to illustrate the logic of this design. The definition has two parts. The first part explains its specific contribution to research methodology. Case study is an empirical enquiry that (Yin 2003b, p13):

- "investigates a contemporary phenomenon within its real-life context; especially when
- the boundaries between phenomenon and context are not clearly evident".

In the second part, Yin elaborates the technical characteristics of data collection and analysis strategies, and states that the following characteristics together fo`rm the case study method, which aims to manage the often indistinguishable boundaries between phenomenon and context in real-life situations. The case study enquiry:

- "copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result
- relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result
- benefits from the prior development of theoretical propositions to guide data collection and analysis".

In this sense, case study as a research methodology covers the logic of design, data collection techniques and specific approaches to data analysis. It is neither a data collection tactic nor merely a design feature alone (Yin 2003b), rather, it deliberately examines a phenomenon in context (Yin 2003b, Morra and Friedlander 1999, Merriam 1998, Stake 1995).

Indeed one of the distinctive features of case study design lies with its ability in examining a phenomenon by covering its contextual conditions (Yin 2003b, Merriam 1998). This ability is regarded by WHO (2001) as particularly essential in evaluating health promotion initiatives, which are inherently complex and embedded in daily life context (Rootman et al 2001, WHO 1998b). Dealing with contextual conditions is crucial because of two main considerations (Yin 2003b, Merriam 1998). First, it is believed that context is highly pertinent to the phenomenon. Second, in real-life situations the boundaries between the phenomena identified for investigation and its context is always indistinguishable. For instance, the phenomenon of the education process for diabetes self-management is embedded in the contemporary context, which includes at least the cultural context and the practice characteristics of the healthcare setting where the education takes place. These contextual conditions may influence the interactions of patients and nurses in the education process. Insights gleaned from examining a phenomenon in context are particularly useful for intensive descriptions and analyses of the phenomenon. These insights may directly influence policy, practice, and future research (Merriam 1998).

Merriam (1998) examines the contemporary conceptualisations, and regards Yin's (2003a) definition as reflecting the research process. From the perspective of the end product of case studies, she contributes another definition: a case study is "an intensive, holistic description and analysis of a single instance, phenomenon, or social unit" (Merriam 1998, p27).

Morra and Friedlander (1999) support Yin's (2003b) assertion, and state that case studies can describe, explore or explain, and that their boundaries are not mutually exclusive. Descriptive cases examine a case or cases from different perspectives within context, exploratory cases investigate various hypotheses or propositions with a case or cases, and explanatory cases examine aspects of causal argument from the findings of the case or cases.

Case study methodologists (Yin 2003b, Hammersley et al 2000, Stake 1995, Merriam 1998) unequivocally highlight the important role of theory in framing case study research and its strength in both testing and building theory. Theory has been argued to be the most important element in providing the logic of designing and incorporating specific methods for and approaches to data collection and analysis (Yin 2003b).

In terms of data collection, the strength of case study lies in its flexibility in using different methods to collect evidence to understand the case (Yin 2003b). Although some researchers regard case study as a purely qualitative or quantitative study design, it may involve both aspects (Yin 2003b, Morra and Friedlander 1999, Merriam 1998, Sandelowski 1996). Patton (2002) comments that case study surpasses other designs in that it allows the combination of a variety of data collection techniques and methods, and thus promotes the development of a rounded and holistic study. This combination allows the examination of a case as a whole using extensive in-depth description (Morra and Friedlander 1999).

A particularly important concept of the case study method is to define what constitute a case so that the cases to be studied can be selected (Yin 2003b, Stake 1995). A case can be a process (Yin 2003b, Bergen and While 2000, Morra and Friedlander 1999, Merriam 1998).

4.4.2 Comparing case study and grounded theory

Amongst research approaches, grounded theory deserves closer examination, because both case study and grounded theory are designs of choice for investigating a process. Researchers prefer grounded theory when the aim is the description and explanation of processes to build theory (Denzin 1994, Glaser and Strauss 1967). The basic tenet of grounded theory is the generation of substantive theory from data (Glaser and Strauss 1967).

Researchers that use this approach are not specific about a phenomenon until data collection is under way. They make a conscious effort to eliminate preconceived beliefs about the phenomenon, and allow the data to indicate the identification of concepts and linkages to arrive ultimately at a grounded theory uncontaminated by the prior theoretical inclination or personal preferences of the researcher. Entering the field without a predefined theoretical framework or formal theory enables the generation of theory that is grounded in the data. Researchers who look elsewhere for insights or conceptualisations to make sense of the data, rather than relying on the data itself, are regarded as violating the tenet suggested by Glaser and Strauss (1967), and it is here that grounded theory differs from case study.

It has been suggested that the case study design resembles and surpasses the grounded theory approach when multiple sources of data collection that use both qualitative and quantitative data are available (Eisenhardt 1995). This enhances the validity of the theory and minimises the chance of researcher bias (Sandelowski 1996, Morse and Field 1995).

4.4.3 Rationale for using case study design

In this study, the research question and objectives (Chapter One) demand the close examination of what happens between a diabetes nurse and a patient during education encounters in a real-life setting – a nurse-led centre in HK. This necessarily means that this writer could not exercise control over the studied phenomenon of the diabetes education process. This process is a contemporary phenomenon for which relevant informants such as nurses and patients are available to allow "what", "how" and "why" questions to be answered. This in turn suggests that the methods adopted for this study should tap different sources of information, which will entail a variety of analyses. It is noteworthy that the phenomenon is closely entwined with its context, a clinical setting in HK, where the education process took place.

Yin (2003b, p1) asserts that:

> "Case studies are the preferred strategy when "how" and "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context".

Although the studied phenomenon has received inadequate research attention, a body of knowledge on the theoretical models of health education and education encounters can be found in the literature. This body of knowledge enabled the development of the theoretical framework

(Figure 4), from which three sets of theoretical propositions (the three templates, see Table 4) were derived for the study. These propositions provide a meaningful focus for the data collection and analysis.

At the outset of this study, the theoretical framework guided the case study method (data collection and analysis strategies, and the delineation of the boundaries of the case from its context), and in the final stage helped to validate, refine and raise questions about the existing theory (Yin 2003b, Linnan and Steckler 2002, Donmoyer 2000, Hammersley et al 2000, Eisenhardt 1995). The use of a theoretical framework has been called the "structure" or "scaffolding" that frames a study (Merriam 1998, p45). The role of theory is of particular benefit to descriptive case studies, as Yin (2003a, p23) explains:

> "a descriptive theory covers the scope and depth of the object (case) being described . . . What should your description include, and what might be excluded? The criteria used to answer these questions would represent your "theory" of what needs to be described. This theory should be openly stated ahead of time, . . . [and] serve as the "design" for a descriptive case study".

Given the research question, the theoretical framework and the three templates with theoretical propositions, a variety of qualitative and quantitative data collection methods from a range of sources were necessary, which is typical for studies of process evaluation (Linnan and Steckler 2002). For these reasons, the case study design was chosen. The case (or the main unit of analysis) was the education process for diabetes self-management in nurse-patient encounters. The education process was chosen as the case, rather than the setting where the process occurred, which echoes Yin's (2003b) assertion that the case definition should follow logically from the research question, and also reflects the broader body of knowledge to which this writer wishes to relate this study.

A single-case study design was used, which is justified when dealing with a revelatory case in which the conditions that exist may be common in other settings, but the case itself provides an opportunity for an in-depth examination of findings that are worth analysis and documentation but have hitherto received no attention (Yin 2003b). As is concluded in the literature review (Chapter Three), the education process for diabetes self-management of a real setting in HK and elsewhere has never been the focus of a study.

4.4.4 Limitations

Despite its strengths, the greatest concern about case study design is the limited basis for generalisation. External validity, or the generalisability of findings, is often viewed as problematic, because the focus is a single case or a few cases (Donmoyer 2000, Gomm et al 2000, Lincoln and

Guba 2000) and some researchers argue that there is no certainty about the representativeness of the findings (Lieberson 2000, Morra and Friedlander 1999).

Case study methodologists argue that case studies use another type of scientific generalisation, that of analytical generalisation (Yin 2003b, Hammersley et al 2000, Merriam 1998, Stake 1995), the goal of which is to expand and generalise findings to theory, rather than numerical figures as in statistical generalisation. Indeed, Yin (2003b) identifies that case selection should not be mistaken as a "sampling unit" (p32), but instead it should be regarded as similar to a laboratory investigator selecting the topic of a new experiment, in which each case is equivalent to an experiment. Yin (2003b, p32) states:

> "Analytical generalisation, [occurs when] a previously developed theory is used as a template with which to compare the empirical results of the case study. If two or more cases are shown to support the same theory, replication may be claimed. The empirical results may be considered yet more potent if two or more cases support the same theory but do not support an equally plausible, rival theory. Analytical generalisation can be used whether your case study involves one or several cases".

In this study, the three theoretical models of diabetes education provide a set of rival theories to enhance the analytical generalisation. The role of a rival theory is similar to, and surpasses that of, a null hypothesis in experimental studies (Yin 2003b). The theoretical models have been turned into three templates that are used to compare the empirical results of the case study. Therefore, this writer builds upon the existing theory of health education and education encounters and attempts to develop new knowledge through analytical generalisation.

Stake (1995) maintains that an understanding of the case through thick description or "the particular perceptions of the actors" (p42) contributes to "naturalistic generalisations" (p85). This refers to conclusions that can be arrived at through vicarious experiences of informants or personal engagement. Lincoln and Guba (2000) suggest that case study researchers should use excerpts to provide rich and thick description to enable readers to judge the transferability of the findings. Case study researchers such as Donmoyer (2000, p63) argue that through thick description, researchers provide "a rich repertoire of schemata through which to view particular events" and expand "the range of interpretations available to the research consumer", and thus that studying the uniqueness of a single case is an asset, rather than a liability.

Although there is only one case in this study, the number of variables (propositions, see Table 4) examined is large (Yin 2003b) and these variables come from multiple sources of evidence. Thick description of the case from multiple sources using multiple methods is attempted (see Chapters Five and Six). In addition, efforts have been made to provide contextual information to make it possible for readers to decide whether the findings are relevant and applicable to other situations and contexts (Peters et al 2002, Guba and Lincoln 2000).

4.5 Case Study Methods

4.5.1 The main unit of analysis

The main unit of analysis, or the case, is defined as the education process for diabetes self-management in nurse-patient encounters. A nurse-led diabetes centre in HK was purposively sampled as the case study site. All diabetes nurses who worked at the centre made up the nurse sample. A one-to-one diabetes education programme offered by the nurses was purposively sampled as the focus for examining the education process. Patients were purposively sampled as participants.

4.5.2 Purposive sampling and multi-stage sampling

4.5.2.1 An overview

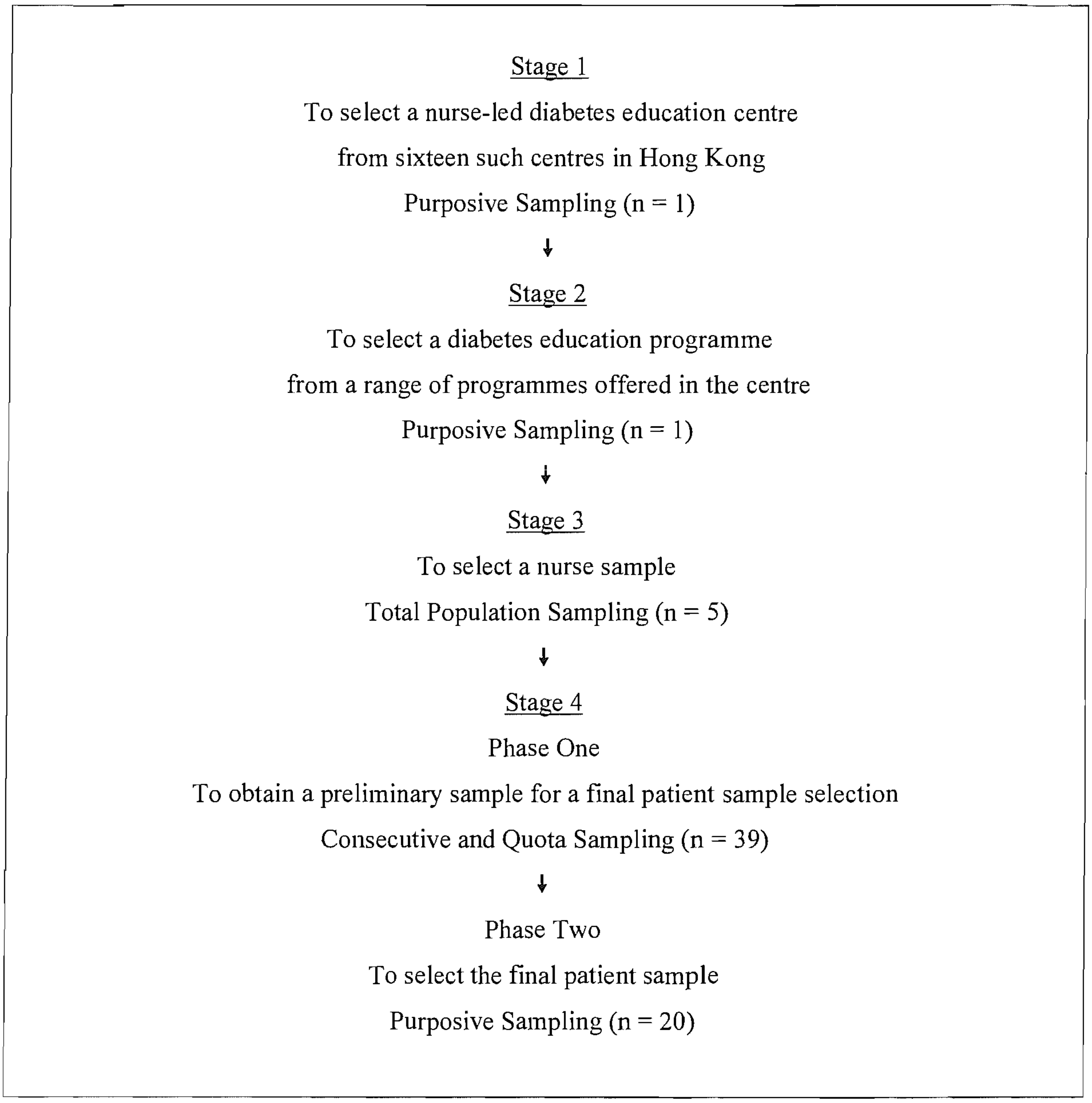
Figure 5 shows the four-stage sampling and sampling methods that were adopted at each stage. A purposive sampling method was employed to seek out the nurse-led centre, education programme, nurses and patients that gave the data on the diabetes education process under studied.

Purposive sampling, which is sometimes called purposeful or judgement sampling, is often the method of choice in qualitative studies (Patton 2002, Silverman 2000, Denzin and Lincoln 1994). "The logic and power of purposive sampling lies in selecting information rich cases for study in-depth" (Patton 2002, p230). Purposive sampling allows researchers to choose cases that illustrate some feature or process in which researchers are interested (Silverman 2000). Nurses and patients as sampling units enter this study by virtue of their intimate knowledge and ability to communicate their experience of the education process.

Because the study is predominantly qualitative in approach, the sample size is considered to be less of an issue than the richness of the data obtained. The literature suggests that a sample is of an adequate size when it can support the desired analysis (Patton 2002, Silverman 2000, Sandelowski 1999, Rice and Eccy 1999, Denzin and Lincoln 1994).

Figure 5

Flow chart showing the four-stage sampling approach and the respective sampling methods of each stage



Stage 1

To select a nurse-led diabetes education centre
from sixteen such centres in Hong Kong
Purposive Sampling (n = 1)

↓

Stage 2

To select a diabetes education programme
from a range of programmes offered in the centre
Purposive Sampling (n = 1)

↓

Stage 3

To select a nurse sample
Total Population Sampling (n = 5)

↓

Stage 4

Phase One
To obtain a preliminary sample for a final patient sample selection
Consecutive and Quota Sampling (n = 39)

↓

Phase Two
To select the final patient sample
Purposive Sampling (n = 20)

4.5.2.2 Stage 1: The case study site

The sampling aimed to sample purposively a site "that maximise[s] what we can learn" (Stake 1995, p4). The nurse-led centre and its practice characteristics provided an opportunity for an in-depth inquiry on the diabetes education process in a real-life context. Appendix 6 reports the establishment, practice characteristics and patient education programmes offered by the centre.

This writer reasons that the centre and its diabetes nurses can be regarded as exemplars of diabetes education practice in HK. In addition, the nurses in the centre are used to being observed, which minimises the threat to the validity of the interaction data collected (Morse and Field 1995).

Access and ethical approval

Ethical approval for the study was sought and obtained from the Ethics Committees of the target hospital and the Research Ethics Committee of the Chinese University of HK. Access to the case study site, nurses and patients was sought and obtained from the Chief of Service of the centre and the Chief Executive of the hospital where the nurse-led centre was located. Appendix 7 shows copies of the approval documents.

4.5.2.3 Stage 2: The one-to-one diabetes education programme

The centre offers a range of diabetes education programmes (Appendix 6), some of which involve one-to-one education encounters. The literature demonstrates that one-to-one education programmes with a series of provider-patient encounters are most appropriate for examining education processes for people who are affected by chronic illnesses (Throne and Paterson 2001, Poskiparta et al 2000, van Dulmen et al 1997, Hampson et al 1996).

This writer's initial choice was to sample the education programme offered to patients who are newly diagnosed, but unfortunately, this particular programme was offered in a one-off group teaching session. The next choice was to sample the programme offered to patients who have just started insulin-therapy. However, when this study was about to start, coincidentally, a group of diabetologists undertook an RCT on these patients. To avoid potential sampling bias and the over-researching of patients, this writer turned to consider other one-to-one programmes.

Finally, the one-to-one programme that sampled was that which is offered to patients who have been referred by doctors to the centre for diabetes education because of "poor glycaemic values" or "inadequate self-monitoring". The literature suggests that the greatest returns may be obtained by targeting patients with poorly controlled diabetes (Gage et al 2004). A logistical hurdle was that the sampled programme had a smaller patient intake than the others, and thus the participant recruitment period lasted for a year. The reason of patient referral has implications on the focus of the education encounters, which is discussed in Chapter Seven.

The following is the usual procedure for enrolling patients in the sampled programme. Upon referral, patients approach the nurse-led centre to book the first appointment. One of the two nurse specialists of the centre conducts a preliminary assessment to decide the urgency and allocate a convenient time for the first appointment. The practice of the centre is that each patient is assigned a named nurse on first enrollment at the centre for diabetes education. Patients attending the sampled programme normally see the same nurse for continuity of care, unless the last episode of encounters lasts for more than two years. When this happens, one of the two nurse specialists takes over the patients for care. Because of this pattern of assigning named nurses, the nurse specialist who has the longest years of service in the centre acquire more patients in the programme. This caused an uneven distribution of patients from each of the nurse participants.

The length, frequency and episodes of nurse-patient encounters in the sampled programme varied according to the individual patient's condition. The named nurse decided the interval of the next nurse-patient encounter with the patient. The usual frequency of attendance was every one to three months until blood glucose (BG) levels were stable. Anecdotal evidence from diabetes nurses shows that most of the encounters last for 30 minutes and most patients require a six-month programme. For the purpose of this research, the data collection on the nurse-patient interaction process was limited to at most six months, or when the encounters were terminated.

4.5.2.4 Stage 3: Nurse participants

The total population of nurses who were working in the centre, namely, two diabetes nurse specialists and three diabetes nurses, were invited to participate. This writer explained the nature, purpose and data collection methods of the study and the nurses' right to refuse or withdraw from participation during the study. All of the nurses consented to participate. A code was randomly assigned from N 1 to N 5 to maintain the anonymity of the five nurses.

Nurse participants were female. As is shown in Table 5, they had been working at the centre for at least six years. N 5 and N 4 have worked there the longest, at 14 and 10 years, respectively. All nurse participants were degree holders and two had a master degree.

The nurse participants contributed to three of the data-sets: the audio-taping of the nurse-patient interaction data, the photocopying of the nursing record of each nurse-patient encounter and the nurse interviews.

Table 5

Demographics and clinical experience of the five nurses

	N 1	N 2	N 3	N 4	N 5
Years since registration	9	16	12	15	20
Years since working at the centre	6	7	8	10	14
Highest nursing degree	Bachelor	Master	Bachelor	Bachelor	Master
Country where diabetes nursing training was received	HK	HK & US	UK	UK	UK
Age (years)	31	37	36	36	41

Table 6

Demographics, clinical characteristics and attendance pattern of the 20 patients

Code[1]	Sex	Age	Marital status	Education Level[2]	Employment	Yrs since diag'd	Type	Treat ment type[3]	Freq. of encounter	Total min	Mean min/ tape	Status[4]
5CHK	M	57	Mar	2	No	12	2	1	3	117	39	Cont'd
5CKF	F	61	Wid	0	No	18	2	1	3	89	30	Closed
5FYS	F	68	Mar	0	No	12	2	1	3	115	38	Closed
5HYL	F	59	Mar	1	No	18	2	3	2	78	39	Closed
5KSM	F	46	Sin	1	No	28	1	2	6	203	41	Closed
5MCF	F	40	Div	2	No	24	1	2	6	232	39	Cont'd
5NKL	F	45	Div	1	No	16.5	2	3	5	100	20	Cont'd
5SOY	F	48	Mar	1	No	10	2	1	3	75	25	Cont'd
5WSN	F	74	Mar	0	No	11	2	3	5	210	42	Closed
5YSY	F	28	Sin	2	Yes	11	2	3	4	87	22	Cont'd
4CKC-J	M	56	Mar	5	Yes	8	2	3	4	161	40	Closed
4CSY	F	54	Mar	1	Yes	3	2	1	3	164	55	Cont'd
4CYW	F	52	Mar	2	No	5	1	2	2	123	62	Cont'd
4TWM	M	46	Mar	1	Yes	4	2	1	2	82	41	Closed
3CTK	M	65	Mar	2	No	10	2	3	2	54	27	Closed
3CYW	F	58	Mar	0	No	8	2	3	2	74	37	Closed
3HKF	M	64	Wid	2	No	6	2	1	4	213	53	Cont'd
1CSL	M	44	Mar	1	No	10	2	2	6	220	37	Closed
1HKK	M	72	Sin	1	No	3	2	2	2	80	40	Closed
1MSC	M	67	Mar	1	No	5	2	1	2	96	48	Closed

[1] The first digit denotes the nurse, and the following three letters denote the patient.

[2] 0 = no formal education, 1 = primary education (six years), 2 = secondary education (11 years), 5 = post graduation (over 16 years).

[3] 1 = OHA, 2 = Insulin, 3 = OHA + Insulin.

[4] Status refers to whether the education programme was continued or closed by the end of the sixth month.

Figure 6

Flow chart for the sampling of patient participants and data collection methods

Phase One: To obtain a preliminary sample for a final patient sample selection

Consecutive patients who enrolled in the one-to-one education programme over one year was the sampling frame (n = 46)

↓

Six patients refused to participate (n = 40)

↓

One patient who could not take care of ADL was excluded (n = 39)

↓

Telephone interviews were conducted to fill out a pre-education questionnaire[1] (n = 39)

↓

Nurse-patient interactions were audio-taped during the six-month interaction data collection period of the programme (n = 39)

↓

Two patients passed away before the end of the six-month interaction data collection period of the programme (n = 37)

↓

Telephone interviews were conducted to fill out a post-education questionnaire[2] six months after enrolment in the programme (n = 37)

↓

Phase Two: To select the final patient sample

Those patients who had two or more encounters were purposively sampled for semi-structured interviews (n = 30)

↓

Semi-structured interviews were successfully conducted (n = 20)

---

[1] The pre-education questionnaire included the Chinese Diabetes Empowerment Scale (Shiu et al 2003) and an item on the perceived adequacy of diabetes knowledge. Additionally, the HbA1c level as taken on the day of referral was retrieved from the patient record.

[2] The post-education questionnaire was the same as the pre-education questionnaire, but included the Chinese Health Care Climate Questionnaire (Lee and Shiu 2004). The HbA1c level as taken six months after enrolling in the programme was retrieved from the patient record.

4.5.2.5 Stage 4: Patient participants

Recruitment and sampling plan

The recruitment and sampling of patient participants involved two phases (Figure 6). The function of the first phase was to obtain a preliminary patient sample from which information-rich patients could be purposively sampled in the second phase.

In phase one, consecutive HK Chinese patients (type 1 or type 2) who were enrolled in the sampled programme over a one-year period (March 2002 – February 2003) were recruited. In phase two, purposive sampling was carried out six months after patients had enrolled in the programme to select patients for semi-structured interviews. Only patients who were able to take care of activities of daily living (able to self-manage), had at least two education encounters with the nurses during the six-month nurse-patient interaction data collection period, and had completed a pre- and post-education programme questionnaires were eligible for selection.

A two-phased approach to sampling and the one-year recruitment period was adopted due to the relationship between data saturation and purposive sampling (Morse and Field 1995), and to ensure a suitable sample size to support the desired analysis. The two-phased approach also guaranteed that the description of the pattern of the education process (variability) was as natural as possible.

An audit of the attendance record of the centre for the two previous years showed that approximately 40 patients enrolled in the sampled programme per year. Two studies with diabetic patients at this hospital attained a response rate of approximately 70% (Shiu et al 2003, Shiu and Wong 2000). Assuming a similar response rate, it was expected that 28 patients might be recruited within 12 months. Allowing for an attrition rate of 30%, 20 patients might be retained at the end of the programme.

The literature shows that patients may contribute to the nurse-patient interaction and may cause variability (Hulsman et al 1999). To describe the pattern of the process of nurse-patient interaction as naturally as possible, this writer considered that a sample size of about 20 patients would allow the recruitment of at least a few patients per nurse for the analysis.

To estimate the sample size and adequacy of the taped interaction data for analysis, two studies that examine the communication process of diabetes consultations were used as references. Hampson et al (1996) taped two successive consultations between 44 diabetic patients and 2 doctors to amass 88 taped consultations with 25 hours of interaction data. van Dulmen et al (1997) taped three successive consultations between 18 diabetic patients and a doctor to achieve 54 taped consultations with 14 hours of interaction data.

Both of these studies indicate that the proposed sample size of 20 patients and the yield of 20 to 30 hours of interaction data (40 to 60 episodes of interaction) is adequate for analysis. In addition, this sample size is manageable for a solo researcher.

Access to patients, ethical considerations and the achieved sample size

After obtaining ethical approval and access, this writer held a meeting with nurse participants to discuss the feasibility of the patient recruitment plan and data collection methods. Nurse participants found the arrangements to be feasible, but suggested that they should inform patients about this study to obtain their initial agreement before further contact from a research assistant (RA), which is the usual procedure for research activities conducted at the centre. After clarifying that this procedure did not violate ethical considerations, this writer adopted it with an additional feature, which is reported in the following.

In phase one of the recruitment plan (Figure 6), the two nurse specialists who were normally responsible for scheduling the first appointments upon patients' enrollment in the programme introduced the study and asked patients whether they would agree to be contacted by the RA (who was a registered nurse, see Appendix 8, Roles and Responsibilities of Research Assistants) to further explain the details of the study. The nurse specialists assured the patients of their right to refuse without any effect on their care and treatment. A remark column was created on the routine appointment booking record of the centre. In the remark column, the nurse specialists recorded the contact telephone number of patients who had agreed to further contact. A refusal was marked down as a "cross" in the column. This writer explained to the nurse specialists that it was not necessary to ask for reason for refusal.

The RA visited the centre every week to retrieve this information from the appointment booking record. The RA then phoned the patients who agreed to participate to explain the nature and data collection methods of the study. The right to refuse to participate and to withdraw from the study at anytime without the need to give a reason was reiterated. Verbal consent was obtained from patients and was sought again before each episode of data collection.

During the one-year recruitment period, six out of 46 patients refused to be contacted by the RA. The remaining 40 patients consented to participate after the RA's explanation, which gives a response rate of 87%. One patient was subsequently excluded from the study because she relied on a maid to perform activities of daily living and diabetes self-management.

The RA conducted structured interviews over the telephone with the 39 patients to administer the pre-education questionnaire that was developed for this study. Whenever the 39 patients attended a one-to-one education session during the six-month nurse-patient interaction data collection period, the interaction process was audio-taped.

Two patients passed away before the data collection period had expired, leaving 37 patients in the preliminary patient sample. Six months after the consenting patients had enrolled in the programme, the RA conducted another structured interview by telephone to administer the post-education questionnaire.

In phase two of the patient recruitment procedure, this writer purposively sampled information-rich patients for semi-structured interviews according to the aforementioned selection criteria. Thirty of the 37 patients (81%) had had two or more encounters with their nurses, two patients had had only one encounter and five had failed to attend the second education appointment. This writer explained to the nurses that no special effort should be made to ensure attendance because of this study.

This writer contacted the 30 patients by telephone to invite them to attend a semi-structured face-to-face interview. Ten of the 30 patients (33%) were not interviewed. One patient passed away, one developed hearing problems, three were hospitalised, another two could not be contacted (the telephone number of one was incorrect and one had left for mainland China for three months) and three refused to be interviewed.

This writer therefore successfully carried out 20 semi-structured interviews with the 20 patients who made up the final patient sample. The patient interviews, taped interactions with nurses and questionnaire data comprise three data-sets in this study.

Table 6 shows the demographics, clinical characteristics and attendance pattern of each of the 20 patient participants. By the end of the sixth month after enrolling in the programme, 12 patient participants had completed the programme, and the rest (n = 8) were still attending.

4.5.3 Sub-units of Analysis

4.5.3.1 An overview

This writer adopts Yin's (2003b) idea of disaggregating a single case into sub-units of analyses for the purpose of building up a more holistic picture of the case. Four main sources of evidence can be derived from the theoretical framework of this study, thus giving four sub-units of analyses. In order of collection, they are as follows.

1. Nurse-patient interaction.
2. Patient outcomes.
3. Patient perceptions.
4. Nurse perceptions.

Different data collection techniques were used for each sub-unit, including the taping of interactions, scale administration, retrieving glycaemic readings from patient records, semi-structured interviews and documentary analysis. Table 7 summarised the data collection period, methods and data-sets by sub-unit of analysis, and gives the research objectives.

Table 7

A summary of the data collection period, methods and data sets by the four sub-units of analysis

Sub-unit (Research objective)	**Data collection period**	**Data collection method**	**Data set**
1. Nurse-patient interaction (Objective 1)	During the six-month interaction data collection	Audio-taping of nurse-patient interaction	Nurse-patient interaction
2. Patient outcomes (Objective 2)	Upon enrolment in the programme (Pre-education quantitative data)	Retrieval of HbA1c readings Structured telephone interviews using a pre-education questionnaire: demographic and clinical data sheet, perceived adequacy of diabetes knowledge, the Chinese Diabetes Empowerment Scale	Patient outcome
	Upon expiry of the six-month interaction data collection (Post-education quantitative data)	Retrieval of HbA1c readings Structured telephone interviews using a post-education questionnaire: perceived adequacy of diabetes knowledge, the Chinese Diabetes Empowerment Scale	
3. Patients' perceptions (Objective 3)	Upon expiry of the six-month interaction data collection (Post-education quantitative data)	Structured telephone interviews using the Chinese Health Care Climate Questionnaire (part of the post-education questionnaire)	Patient C-HCCQ
	After the expiry of the six-month interaction data collection period	Semi-structured face to face interviews	Patient interview

4. Nurses' perceptions (Objective 4)	Upon expiry of the six-month interaction data collection period	Photocopying of the nursing records of each of the encounters	Nurse documentary
	When all the patients had completed the six-month interaction data collection period	Semi-structured face to face interviews	Nurse interview

4.5.3.2 Sub-unit one: Nurse-patient interaction

4.5.3.2.1 Data collection methods

Method of data collection

This sub-unit of analysis was conducted to address the first research objective. Whenever the patients met their nurses for diabetes education at the centre, the entire interaction process was recorded using taping facilities. Audio-taping as an observational strategy was selected as informed by the literature review (3.7.2).

The methodological issue of the potential effect of observers or taping facilities on the dynamics of the nurse-patient interaction was considered (Schwartz and Schwartz 1995), and two methods were used, in addition to purposive sampling of a centre where nurses are used to being observed, to further minimise the threat to validity. First, neither this writer nor the RA was present during the nurse-patient encounters, and taping was the only observational strategy employed. Second, small tape recorders with built-in microphones and auto-reverse features were used by the nurses to enable the recorders to be placed in plain view of the nurse's desk and without the trouble of the need to intermittently manipulate them. The minimal obtrusiveness of the equipment was subsequently confirmed in the semi-structured interviews by both patient and nurse participants.

Data collection procedure

The nurses volunteered to tape the interaction themselves. The RA prepared sets of tapes and recorders that were user-friendly and ready-to-go. The RA reminded individual nurses about the need to tape an encounter by sticking a label in the nurses' appointment book. Only one encounter was missed in the entire taping process, and another encounter was missed due to recorder failure. At the beginning of each encounter, the nurses again obtained the patients' verbal consent for the taping.

4.5.3.2.2 Data transcribing

A methodological concern with data analysis is the accuracy of the data transcription (Easton et al 2000, Lapadat and Lindsay 1999). Two part-time RAs were employed to transcribe verbatim all of the tapes to written Chinese document files. The accuracy of the transcription was checked during the training sessions and during data analysis.

The format for transcription followed that used by Poskiparta et al (2001) in their study on nurse-patient interaction. The tapes were transcribed word for word, including stammering, laugh and para-linguistics. Additional data were added to the transcriptions, such as pauses during and between turns, the onset and termination of overlapping talk and intonation information. The following list shows the symbols used in transcripts.

Vo+ = raising voice
Vo- = falling voice
[ ]= at the beginning and end of overlapping speech, words enclosed
(( )) = transcriber's comments, for example, smile, laughter, length
(.) = small but detectable pause
<u>underlining</u> = emphasis
= = no interval between the end of the prior and the start of next speech unit
o speech o = speech in low volume, words enclosed
'speech' = pitch changed, words enclosed

The 20 patients who were purposively sampled had a range of two to six encounters with their named nurses, which yield 69 nurse-patient encounters and 43 hours of data for the analysis. All data analysis was undertaken in Chinese. The quotations that are used to illustrate the findings (Chapter Five) may appear ungrammatical due to the verbatim nature of the translated Chinese data.

4.5.3.2.3 Rationale for using two analytical strategies

Two analytical strategies, the Roter Interaction Analysis Scheme (RIAS) and an analysis scheme for education strategies, were used. The RIAS, which is one of the most widely used analytical systems, has the benefit of taking care of both the care and cure aspects of the communication of both providers and patients (Roter and Larson 2002). It is also valid and reliable, and is highly adaptable, because some of the categories can be modified to reflect the focus of the interaction (Roter and Larson 2002). Hampson et al (1996, p52) justify the appropriateness of the RIAS for their study with a rationale that is also used by this writer to support the use of the RIAS for this study.

> "The RIAS was chosen because . . . The structural coding consisted of assigning every utterance made by the physician or patient to one of 37 mutually exclusive categories. An utterance was defined as the smallest discriminable speech unit to which a classification could be assigned. The categories reflect the socioemotional aspects of the exchange . . . and the task-focused aspects".

The main function of the RIAS in this study is to provide a frequency count of the communication skills that were used by the nurses and patients to create a data-set for the interpretation of communication style. The subsequent findings locate this study in the literature of RIAS studies. This allows a direct comparison with such studies. However, the very strength of the RIAS is also its weakness, in that the coding of each utterance in an encounter reduces the whole encounter to its component types of communication behaviour (Campbell et al 1990). Hampson et al (1996) report that the RIAS does not address important features of diabetes education.

The second analytical strategy of this study, an analysis scheme for education strategies, was established to analyse the important features of education encounters. The literature review (3.7.2) reveals that no such analytical scheme currently exists, and as stipulated in the theoretical framework for this study (Figure 4), the establishment of such a scheme should be conceptually specific (Holmstrom et al 2004) to the theoretical models of health education so that the model adopted by the nurses could be discerned and derived empirically. The literature shows that education strategies are usually used across encounters (Whittemore et al 2001), and the development of an analysis scheme as a data management tool should cover not only individual sentences (or utterances), but also the essence of blocks of dialogue that occur within or across a series of encounters.

4.5.3.2.4 Roter Interaction Analysis Scheme

The most recent manual on the RIAS was downloaded on 6 December 2002 from the website www.RIAS.org. It consists of 40 categories of communication skills organised into two main aspects of exchange: socioemotional (for example, "Gives compliment") and task-focused (for example, "Gives information"). Six of the 40 categories pertain to providers only (for example, "Partnership", "Counsels"), and two pertain to patients only ("Gives information on psychosocial" and "Requests services or medication").

In this study, two changes were made to the RIAS to reflect the nature of the exchanges in nurse-led diabetes education programmes. First, the category "Counsels – medical condition/therapeutic regimen" was amended to "Counsels –therapeutic regimen" to reflect the nature of the nursing interventions. Therapeutic regimen includes issues related to medication, medical follow-up and the healthcare system in general. Second, the category "Counsels – lifestyle/psychosocial-feelings" was deliberately separated into two, "Counsels – lifestyle" and "Counsels – psychosocial-feelings" to differentiate between the task-focused nature of the former and the socioemotional nature of the latter. The adapted variables for nurse communication analysis (Table 11, Chapter Five) include 18 for socioemotional aspect and 20 variables for task-focus aspect. The adapted variables for patient communication analysis (Table 12, Chapter Five) include 15 variables for the socioemotional aspect and 18 variables for the task-focus aspect.

This writer and a RA independently test-coded a series of interaction data to examine the fit and power of the adapted RIAS variables. Each series of data includes the taped interaction between one nurse and one patient within the six-month interaction data collection period. Coding was hand written on the transcripts while listening to the audio-tapes. Both coders found that the RIAS worked well in analysing the whole exchange.

This writer and the RA then independently test-coded two series of the data and an inter-coder reliability of 90% was obtained using the formula of Miles and Huberman (1994) of the number of agreements divided by the total number of agreements + disagreements. From then onwards, the

RA coded the rest of the interaction data. A sample of the RIAS coded transcript is given in Chapter Five (5.3.3.4.3). All the RIAS coded transcripts were stored in the case study database for auditing purposes.

In this study, the use of the RIAS allows the development of codes and categories of the communication skills that were used by both the nurses and patients in the interactions. Descriptive statistics of percentage and frequency were used to report the different types of communication skills, such as open- and closed-ended questions, and the socioemotional and task-focused aspects of the exchange.

4.5.3.2.5 An analysis scheme for education strategies

The second analytical strategy utilises a qualitative mode of analysis by using an analysis scheme as a "template organising style of interpretation" (Crabtree and Miller 1999, Miller and Crabtree 1999, Miles and Huberman 1994).

> [This] involves coding a large volume of text so that segments about identified topic (the codes) can be assembled in one place to complete the interpretive process (Crabtree and Miller 1999, p166).

This is the preferred analytical process when "there is good prior knowledge of the topic [education strategies], a clinical audience is anticipated, [and] a research aim is theory testing" (Miller and Crabtree 1999, p24). The template, which is sometimes referred to as a "code manual" (Crabtree and Miller 1999, p164) can be derived from theory and pre-existing knowledge (deductive), and from reading the transcripts after the data has been collected (inductive).

In an attempt to allow the deductive and inductive development of the analysis scheme for education strategies, a four-step approach was employed in accordance with the literature (Morse and Mitcham 2002, Patton 2002, Crabtree and Miller 1999, Miller and Crabtree 1999, Miles and Huberman 1994). Figure 7 shows the four steps.

Figure 7

Flow chart showing the steps in the development of the analysis scheme for education strategies (ESAS)

Creating the analysis scheme

Step 1

Generation of a coding list from the literature and the theoretical framework

(Start list)

↓

Step 2

Test coding of a subset (4 series) of the interaction data to refine the coding list

(Step 2 revised list)

↓

Step 3

Tentative coding and recoding of all of the data to further refine the coding list

(Step 3 revised list)

↓

Step 4

Independent coding of another subset (two series) by two coders to compare and check for disagreement and decide on the final coding list

↓

Coding and sorting of interaction data according to the final coding list

↓

Connection and corroboration

Creating the analysis scheme

In the first step, a coding list for the education strategies was generated after careful consideration of the research question, the theoretical framework, and the theoretical propositions of this study. The literature on tripartite conceptual analysis of health education and health promotion (Chapter Two) served as the main source for this step. The initial list was called the "start list" as in Miles and Huberman (1994, p58), who assert that their preferred way of creating initial codes before fieldwork is to rely on the theoretical framework to generate conceptual order and structure amongst codes.

Each education strategy was regarded as a code. The start list consisted of 21 education strategies (for example, "Assessing felt needs", "Assessing motivation") with 25 sub-codes (for example, "Assessing felt needs – information" and "Assessing felt needs – emotional support"). The function of the sub-codes was the same as that of the main codes, but with more specificity. The start list is given in Appendix 9.

A master code of ED, PR or EM was assigned to most of the codes to show which of the three theoretical models of diabetes education they reflected, that is educational, preventive or self-empowerment, respectively. Five of the codes had the two master codes EM or ED. The difference between EM and ED was that the strategies in the former are non-judgmental and those in the latter are value-free. Of note is that four of the codes did not have a master code, as thus can be regarded as ideologically neutral (not reflect the ideology of a particular model). An example is "Assessing self-management ability". Whether the codes belong to a specific model depends on whether health or sick nursing interactions were used (Macleod Clark 1993). Examples of health and sick nursing interactions are "collaborative, individualised, negotiated, supportive and facilitative", and "dominating, generalised, prescriptive, reassuring and directive", respectively (Macleod Clark 1993, p258). If the former interactions were used, then the strategies were regarded as belonging to either the self-empowerment or the educational model, whereas when the latter were used, the strategies were regarded as pertaining to the preventive model.

In the second step, the start list was applied to test-code four of the 20 interaction data series to examine its fit and power. The coding was written on the transcripts while listening to the tapes. This episode of step also allowed new codes to emerge from the interaction data by means of interpretive observations (Crabtree and Miller 1999, Miles and Huberman 1994), because this writer held the list lightly whilst maintaining an open-minded and context-sensitive approach (Miles and Huberman 1994). The additional inductive (interpretative observation) approach that was used to develop the analysis scheme was an attempt to guard against missing information (Crabtree and Miller 1999).

During test-coding, this writer read the transcripts repeatedly to assign the codes and sub-codes and to generate new codes. This writer kept on asking herself why the assigned codes fitted the segments, and whether new codes could better reflect the essence of the segments. This process forced this writer to further refine the descriptors of the codes to ensure their mutual exclusivity.

For example, this writer repeatedly debate whether the segment 3HKF V1 P1011-P1079 (see Chapter Five, 5.3.3.4.3) from one of the transcripts should be termed "Negotiating a mutually acceptable contract", "Prescribing behaviour change", or "Persuasive communication". In this segment, the nurse tried to convince the patient to perform regular BG self-monitoring (BGSM) by changing his beliefs and attitude. It was decided that this segment was not about negotiating, because there was no partnership to achieve a contract. Although the segment contained 33 turns from the nurse and 35 turns from the patient, the nurse spoke the majority of the time, and the patient gave mainly short responses such as "yes" and "right".

This writer further considered the segment to be more than a prescription for four main reasons. Firstly, the nurse believed that the patient's wife, who passed away half a year before, would have very much hoped that he would perform BGSM. Secondly, it was obvious that although the patient's children had difficulty in translating their concern into action due to work demands or family commitments, they cared for the patient, as was demonstrated by the action of buying him the equipment for BGSM. Thirdly, the patient's health status might deteriorate within a short period if he did not monitor the BG, and fourthly, without BGSM readings, the nurse could not obtain reliable data to make a judgement, and thus no feedback could be given to help the patient understand his progress.

Analysing the segment in the context of the encounter, this writer concluded that the nurse persuaded the patient to perform regular BGSM by appealing to him emotionally. The main function of this was to act on beliefs and attitudes, which meets the descriptor of "Persuasive communication". It is noteworthy, however, that this strategy always appear with "Prescribing behaviour change".

During the test-coding, three codes and two sub-codes surfaced inductively from the data, and included "Assessing disease progress", "Providing feedback – on disease progress", "Traditional teaching – guided practice", "Facilitating the venting of negative emotion" and "Negotiating sustainable behaviour".

"Assessing disease progress" is specific to the process of educating patients to self-manage chronic illness. The nurses assessed patients' subjective and objective data to interpret the disease progress. "Providing feedback – on disease progress" emerged from the data to add specificity to the existing code of "Providing feedback", the nurses typically gave feedback to patients after assessing their disease progress, in addition to giving feedback on self-management ability. "Traditional teaching – guided practice" emerged from the data to differentiate it from the existing sub-code of "Traditional teaching – demonstration" for situations in which the nurses used "Guided practice" or verbal guidance, to help patients to practise an unfamiliar psychomotor skill (for example, BGSM or injection), rather than demonstration.

"Facilitating the venting of negative emotion" emerged from the data for instances when nurses used active listening skills to help patients to vent their emotions. This was initially created as a sub-code of "Counselling – ventilating negative emotion", but was later turned into a stand-alone code, as it reflected an important finding in the literature that patients who vented negative feelings in the encounters usually exhibited poorer glycaemic control, especially if their feelings were not resolved (Street et al 1993).

"Negotiating sustainable behaviour" was used as a strategy in every encounter, apart from the case-closed visits. This writer struggled for a while to determine whether the negotiation to fix the next education appointment should be "Negotiating a mutually agreeable contract" or "Mobilising social support", and finally decided to create a new code. This strategy is not about setting up a mutually agreeable contract to facilitate the transfer of the intention of the patients to action, because the nurses prescribed the need for the next appointment without checking on the patients' intention. It was simply assumed. This strategy appeared to be close to "Mobilising social support", because the nurses worked around their schedule to make attendance easier for the patients. The main difference between the two strategies is the function. "Mobilising social support" is about facilitating choice or behaviour change, whereas "Negotiating sustainable behaviour" is about sustaining prescribed behaviour. The nurses assumed that patients would agree with the need for more visits, and ensured patients would return by negotiating a convenient time with them.

The test-coding in the second step was an iterative process, with up to 10 iterative cycles of coding and recoding. When a new code appeared to be salient, the four series of data were re-read to examine whether anything should be reassigned to the new code and to verify the need for the new code. Similarly, when old codes appeared to require refinement, the data was re-read to justify the change. Although the new codes surfaced progressively in the test-coding, the conceptual orientation of the analysis scheme seemed to bear real fruit, and to describe well what went on during the education process. The second step of coding expanded the start list to 23 codes (education strategies) and 41 sub-codes. Appendix 9 shows this revised list.

In the third step, the revised list from step 2 was applied to code tentatively all of the interaction data. Again, this writer knew that codes might change, and an iterative process with another two cycles of coding and recoding was conducted. There was no more creation of new codes at this stage; the purpose of the two cycles of recoding was to refine the wording of some of the sub-codes and to delete some decayed codes that did not fit any of the interaction data (Miles and Huberman 1994).

Two codes that had decayed were "Acting as an advocate of environmental coercion" and "Acting as advocate of environmental and social support". The former belongs to the preventive and the latter to the self-empowerment model. The two codes were deleted from the coding list because, although such strategies exist in the literature, they are less likely to be used in one-to-one diabetes education. It may be that nurses network to play an advocate role outside the interaction process.

Another five codes that had decayed were "Assessing personal and environmental resources", "Value clarification", "Critical consciousness raising", "Experiential learning activities", and "Modelling" along with the two sub-codes of "Beliefs about control and self-efficacy" and "Values promotion". All of these codes belong to the self-empowerment or educational models of diabetes education. However, in this case the codes were retained in the analysis scheme, because it was thought that, in addition to creating an evaluative template for analysing data, the developed template should be applicable to future studies to discern the use of the theoretical model from a comprehensive range of education strategies.

The iterative process of coding and recoding finished once this writer found a list that worked well, with data that could be "readily classified" and when "categories were saturated and sufficient numbers of regularities emerged" (Miles and Huberman 1994, p62). The revised coding list that was derived in third step comprised 21 codes (strategies) and 41 sub-codes.

In the fourth step, two coders, this writer and the RA, independently applied the revised coding list of the third step to analyse two series of the interaction data. A meeting was held to discuss any disagreements, which confirmed that no further revision was required. The established list was termed the Education Strategies Analysis Scheme (ESAS). Table 8 gives an overview of the ESAS with its 21 codes (strategies). There are four strategies with a master code of PR and eight with a master code of EM. Additionally, four strategies match the ideology of ED or EM, and five are ideologically neutral. The ESAS and the descriptors of each of the codes are given in Appendix 9.

Coding and sorting the interaction data set

This writer applied the ESAS to code all the interaction transcripts manually on hard copy using a pencil while listening to the tapes. Multiple photocopies of the marked-up transcripts were made, and the coded segments were sorted into files. The data were then displayed in explicit form by education strategies, ready for interpretation (Crabtree and Miller 1999).

Connecting and corroborating

This involved reading the segments and making connections that were subsequently corroborated and legitimised (Crabtree and Miller 1999). Chunking (Miles and Huberman 1994) was used to connect the interaction data, which in this study means putting "chunks" of related segments of interactive data together for examination and interpretation (Crabtree and Miller 1999). For example, all of the segments of different assessment strategies were sorted and examined together. These segments (chunks) ranged from several lines to several pages in length. The chunks were then further analysed using an immersion/crystallisation organising style. In this process, this writer read the segments of each chunk (each assessment strategy) and across the chunks thoroughly and discussed them with the academic supervisor until the crystallisation of key themes became possible. For example, a theme of "nurse-centred assessment with nurses playing a detective role" emerged from the data (5.3.3.3). The interpretative process was then completed with the writing up of the analytical process. A record of the development of the ESAS and the coded data were kept in the case study database for auditing.

Table 8

The analysis scheme for education strategies (ESAS)

Descriptive label for the strategies	Codes #
1. Assessing felt needs	ED or EM-AFN
2. Assessing self-management ability	ASM
3. Assessing disease progress	ADP
4. Assessing motivation	EM-AM
5. Assessing personal (various skills) and environmental resources	EM-APER
6. Providing feedback	FB
7. Traditional teaching	PR-T
8. Prescribing behaviour change	PR-PBC
9. Persuasive communication	PR-PC
10. Enquiry-based teaching	ED or EM-E
11. Values clarification	ED or EM-VC
12. Counselling	EM-C
13. Facilitating the venting of negative emotion	EM-FV
14. Anticipatory guidance	AG
15. Critical consciousness raising	EM-CCR
16. Modelling	EM-Mod
17. Experiential learning activities	ED or EM-ELA
18. Maximising memory	MM
19. Negotiating a mutually acceptable contract	EM-NC
20. Negotiating sustainable behaviour	PR-NSB
21. Mobilising support	EM-MS

The master codes of ED, PR or EM denote educational model, preventive model or self-empowerment model, respectively. Strategies without a master code are regarded as being ideologically neutral.

4.5.3.3 Sub-unit two: Patient outcomes

4.5.3.3.1 Data collection methods

This sub-unit of analysis was conducted in response to the second research objective. The education process of each of the three theoretical models of diabetes education (Table 4) are likely to show a different impact on patient outcomes, and thus two questionnaires, a pre-education and a post-education questionnaire, were developed to assess patient outcomes.

The questionnaires were filled out at two time points: before the patients had started (pre-education) and six months after (post-education) enrolling in the programme. The RA, in the telephone interviews, read each item of the questionnaires in a structured manner and recorded the patients' responses.

The telephone interview as a data collection method has gained increasing popularity and acceptability (Carr and Worth 2001, Garbett and McCormack 2001). The literature suggests that the quality of data is at least comparable to that obtained from face-to-face interviews (Carr and Worth 2001). In addition, telephone interviews have an advantage over the face-to-face interviews, because there are smaller interviewer effects and a lower tendency to give socially desirable responses, and the costs are also lower in terms of time and effort. In HK, over 95% of households possess a telephone, and, most importantly, all of the patients had either a home or mobile phone. The telephone interviews usually lasted 15 minutes.

Instruments

The pre-education questionnaire consisted of 32 items in three components: (1) a demographic and clinical data sheet, (2) a one-item measure of the perceived adequacy of knowledge of diabetes self-management and (3) the Chinese Diabetes Empowerment Scale, C-DES (Shiu et al 2003). The post-education questionnaire consisted of 26 items in three components: (1) the C-DES, (2) the one-item measure on the perceived adequacy of knowledge of diabetes self-management and (3) the Chinese Health Care Climate Questionnaire, C-HCCQ (Lee and Shiu 2004). The C-HCCQ was included in the post-education questionnaire to examine the patients' perceptions of the education process, and is reported in the next sub-unit of analysis. Appendix 10 (Instruments) displays the pre- and post-education questionnaires.

Demographic and clinical data sheet

The demographic and clinical data sheet was used only in the pre-education questionnaire. It consisted of eleven items that measured the length of time since diabetes was diagnosed, the treatment modalities (insulin, oral hypoglycaemic agents), the type of diabetes, any diabetes complications, when the last diabetes education programme was attended, education level, employment status, gender, marital status, age and household income.

Perceived adequacy of diabetes knowledge

In accordance with the theoretical propositions, this writer considers that developing the knowledge of self-management amongst patients is central to the diabetes education process, irrespective of the theoretical model of health education adopted by nurses.

An item was developed to measure the patients' perceived adequacy of knowledge of diabetes self-management. The one-item approach was preferred to established scales such as the widely used 15-item Chinese Diabetes Knowledge Scale (Lee and Shiu 2004) for three main reasons. First, it was an attempt to lower respondent fatigue; second, the taped interaction data might have demonstrated this level of knowledge from the nurse's assessment and third, and most importantly, this evaluation aimed to assess changes in the patients' perceptions, rather than obtain precise information about the patients' diabetes knowledge status. The literature suggests that a one-item approach can achieve this aim (Nunnally 1994).

This item on perceived adequacy of diabetes knowledge appeared in both the pre- and post-education questionnaires. This writer used a ten-point Likert type rating scale with "1" denoting very minimal knowledge and "10" denoting very adequate knowledge. The item read as follows: "To what extent do you think you have adequate knowledge of diabetes self-management?" The comparison of the pre-post data provided an outcome indicator of the education process.

C-DES

In accordance with the theoretical propositions, this writer considers that developing diabetes-specific psychosocial self-efficacy amongst patients is central to the education process when nurses adopt the self-empowerment model. This self-efficacy is defined as the perceived ability of individuals to self-manage to overcome barriers, determine suitable methods, achieve goals, obtain support and cope (Shiu et al 2005, Shiu et al 2003). The C-DES with 20 items measured this self-efficacy, and was adopted in both the pre- and post-questionnaires. A pre-post comparison of this data gave an outcome indicator of the education process.

The C-DES was translated into Chinese and psychometrically tested by this writer (Shiu et al 2005, Shiu et al 2003). The original scale (Anderson et al 1995) was previously developed in the US to measure the outcomes of patient empowerment programmes. It demonstrates good internal consistency ($\alpha = 0.86$) and test-retest reliability (intraclass correlation coefficient = 0.75, 95% CI 0.43-0.91). Patients are asked to indicate on a five-point Likert scale from "1" (strongly agree) to

"5" (strongly disagree). The scores of the 20 items are added together to form a composite score, with a higher score denoting stronger self-efficacy. A sample item is "In general, I believe that I can think of different ways to overcome barriers to my diabetes goals".

Laboratory tests for glycaemic control, HbA1c levels

Patients' HbA1c level was adopted as an objective outcome measure of metabolic control. In accordance with the three templates of the theoretical framework, this writer considers that nurses who subscribe to the educational model or the preventive model would expect improved HbA1c levels from their patients after they attended a programme. However, nurses who subscribe to the self-empowerment model would expect HbA1c levels to be influenced by many factors, including patient environment (WHO 1986) and the disease progress (UKPDS 1998).

On the day that the doctor made the referral for a patient to attend the education centre for diabetes education, a sample of blood was routinely taken to assess HbA1c levels to review the average glycaemic concentration over the preceding three months. The readings were retrieved as objective data of pre-education glycaemic control. The usual medical practice of the hospital was to evaluate patients' glycaemic control at least every three to six months. The same readings taken six months after the patients enrolled in the programme were retrieved as the post-education programme glycaemic control data. A comparison of the pre-post data allowed an objective evaluation of the changes in metabolic control, and serves as an outcome indicator of the education process.

4.5.3.3.2 Data analysis

Descriptive statistics were used to describe the means and standard deviations of each of the measured variables. Paired t tests or Wilcoxon Signed Ranks Tests were used, after conducting a Kolmogorov-Smirnov test of normality, to identify the differences in the pre-post comparison of the variables, including the perceived adequacy of diabetes knowledge, the C-DES and HbA1c levels.

4.5.3.4 Sub-unit three: Patient perceptions

This sub-unit of analysis was conducted in response to the third research objective. Two data-sets, one quantitative and the other qualitative, were collected.

4.5.3.4.1 Quantitative data collection method

The data collection method and procedures for the quantitative data-set were the same as those for Sub-unit 2. In the following, the instrument adopted is reported.

Instrument: C-HCCQ

The five-item C-HCCQ appeared only in the post-education questionnaire. In accordance with the theoretical propositions, this writer considers supporting autonomy and choice of patients in self-management to be one of the central features of the education process when the self-empowerment model is adopted. Although this feature could be directly examined from the nurse-patient interaction data, it is important to assess patients' perceptions of this support. The scale was administered six months after the patients enrolled in the programme to allow their experience to develop over time. This finding is regarded as a process indicator.

Williams et al (1998a, 1998b) developed the original HCCQ in the US to measure patients' perceptions of how their health providers support their autonomy. The theoretical orientation of this instrument incorporates the concept of self-efficacy, which is central to the self-empowerment model (Tones and Tilford 2001). Williams et al (1998a, 1998b) report that when patients perceive a health care climate to support their autonomy and choice, they usually assume an active role in self-management. The HCCQ has a demonstrated ability to predict competence motivation, patient satisfaction, quality of life and glycaemic control (Williams et al 2005a).

This writer previously translated the HCCQ into Chinese (Lee and Shiu 2004). The C-HCCQ has a high internal consistency ($\alpha = 0.81$) and test-retest reliability (intraclass correlation coefficient = 0.88, 95% CI 0.70-0.96). Patients choose a value on a seven-point Likert scale from "1" (strongly disagree) to "7" (strongly agree). The scores of the five items are added together to form a composite score, and the higher the score the stronger the perceived support for autonomy. The C-HCCQ examines areas including nurses offering choices and trust, encouraging questions, showing understanding and considering the patients' viewpoints before giving advice. A sample item is "I feel that my diabetes nurse has provided me with choices and options".

4.5.3.4.2 Data analysis

Descriptive statistics were used to describe the means and standard deviations of the C-HCCQ scores.

4.5.3.4.3 Qualitative data collection method

The patients' perceptions and experience of diabetes education and the interaction process were examined in-depth by means of semi-structured interviews, which are typically conducted based on a loose structure that consists of open-ended questions (Patton 2002) that define the area to be explored initially. Interviewers and interviewees may diverge from the structure in the course of the interview to pursue an idea in more detail.

An interview guide was developed from the research question, the theoretical framework and the literature. This writer pilot-tested the guide with two patients who attended another nurse-led centre for education. A copy of the interview guide is given in Appendix 11. The guide included eight areas to be explored.

1. Patients' expectation of the nurse-patient education encounters.
2. The meaning of diabetes self-management.
3. Views on the education process and the development of important abilities.
4. Education preferences.
5. Relationship with the nurse.
6. Views on equal partnership.
7. Desirable skills and attitudes of diabetes nurses.
8. Perceptions of achieved outcomes.

Patient interviews were undertaken after the expiry of the six-month interaction data collection period of the last patient. Patients were interviewed at this time in an attempt to avoid introducing any new influence on the patients' usual interaction behaviour because of the interview.

This writer made telephone calls to patients who had had at least two encounters with their named nurses to invite them to participate in the interviews. As has been reported, 20 patients were successfully interviewed. This writer purposefully stayed away from the clinical setting and conducted patient interviews in a neutral location with an open atmosphere in which patients might feel relaxed and be willing to share their feelings and opinions (Patton 2002, Silverman 2000). The patients were interviewed in a place that was convenient for them, which included this writer's office on a university campus, restaurants, parks, social centres and the patient's home.

This writer's neutral position as an academic working outside the hospital, rather than an administrator assessing the performance of the nurses or the ability of the patients, was clarified again at the beginning of each interview. The right of refusal and withdrawal of the patients was also reiterated, as was the confidentially and anonymity of the personal data. These strategies were adopted to minimise the giving of socially desirable responses (Patton 2002).

This writer undertook all of the semi-structured interviews. The literature suggests that the interviewer is a research instrument, who requires special skills and a firm grasp of the issues being studied (Yin 2003b, Rice and Ezzy 1999, Seidman 1998). This writer utilised appropriate interviewing skills, and allowed the participants to tell their story and enter the experience at their own pace, as is suggested by Morse (2000), to minimise distorted or forgotten details in retrospective interviews. This writer maintained appropriate eye contact with the participants, adopted a non-judgmental attitude and avoided interrupting. This writer used the skills of probing and clarifying to illicit responses, including "this is interesting, please tell me more", "please help me to understand why . . ." and "could you give me an example of . . .". This writer listened to the content and process of the participants' responses, and took note of non-verbal clues that suggested new avenues (Rice and Ezzy 1999, Seidman 1998).

The interviews were audio-taped with the permission of the patients, to whom it was explained that audio-taping was needed to eliminate errors of memory and interference caused by taking notes during interviews.

4.5.3.4.4 Data analysis

The patient interviews ranged from 50 to 120 minutes in length (total = 23 hours). Immediately after each interview, this writer listened to the tape twice and wrote memos on her impressions and observations. The memos added to the analysis of the patient interview data. Hunches and leads were recorded.

The interviews were then transcribed verbatim. This writer listened to the tapes and read the transcripts while analysing the data to ensure the accuracy of the transcription (Easton et al 2000). Thematic content analysis was conducted (Morse and Field 1995, Miles and Huberman 1994), adopting the steps suggested by Miles and Huberman (1994).

In step one, the key terms in the transcripts were highlighted. In step two, the key terms were retrieved in a way that made them as "descriptive and literal as possible" (Miles and Huberman 1994, p87). In step three, the terms were reduced into clusters, and the names of the clusters were the codes. In step 4, the clusters were again reduced and labels were attached. These labels were the themes that emerged from the data. Data saturation was achieved, because no new themes could be identified after analysing 16 interviews (Morse and Field 1995).

4.5.3.5 Sub-unit four: Nurse perceptions

This sub-unit of analysis was conducted in response to the fourth research objective. Two data-sets, nurse documentaries and nurse interviews, were collected.

4.5.3.5.1 Documentary evidence collection method

The nurses normally wrote a short passage as a record of each diabetes education encounter, which was entered consecutively in the patient file. All of the nursing records of the nurse-patient encounters during the six-month interaction data collection period were photocopied for analysis. The nursing records ranged from half to one page long, which gave 2 to 3 pages for each patient and 45 pages as a whole. This writer assumed that the nurses had selectively entered the pieces of information that they perceived to be important. The records were analysed to identify the areas of importance to the nurses to reveal the nursing focus of the encounters.

4.5.3.5.2 Data analysis

Thematic content analysis was conducted in the same way as for the patient interviews. All the coded nursing records were stored in the case study database for future auditing.

4.5.3.5.3 Nurse interview data collection method

The nurses' perceptions and experience of diabetes education and the interaction process were examined by means of semi-structured interviews. An interview guide was developed, which this writer pilot-tested with a diabetes nurse. A copy of the interview guide is attached as Appendix 11. The guide includes nine main areas to be explored.

1. Reasons for doctor's referral.
2. The meaning of self-management.
3. Roles and responsibilities in diabetes education.
4. Communication styles of nurses and patients.
5. Education content and methods.
6. Theoretical underpinnings of education practice.
7. Patient empowerment and equal partnership.
8. Relationship with patients.
9. Skills and attitudes required of diabetes nurses.

Data collection procedure

The nurse interviews were undertaken after the expiry of the six-month interaction data collection period of the last patient to avoid introducing any influence on the usual education practice of the nurses because of the interviews. The nurses selected the time and venue of the interviews, and opted to be interviewed in the case study centre. Immediately after each interview, this writer listened to the tape and wrote memos to record her impressions and observations of the interview. This writer made use of the waiting time in the case study centre to conduct non-participant observation of nurse-patient interactions and the activities of the centre. These field notes added to the analysis of the nurse interview data. The nurse interviews lasted from 59 to 96 minutes (total = 7 hours). All interviews were audio-taped and transcribed verbatim.

4.5.3.5.4 Data analysis

Thematic content analysis was conducted in the same way as for the patient interviews. All the coded transcripts were stored in the case study database for future auditing.

4.5.4 Pattern matching logic

Pattern matching was carried out after crosschecking the findings from the four sub-units of analysis. These sub-units contributed findings to answer the four research objectives. Crosschecking across the sub-units was conducted to compare the findings for convergence, and an empirical pattern of the diabetes education process was thus derived. Pattern matching logic (Yin 2003a, 2003b) was then employed to compare the empirical pattern with the three templates as set out in the beginning of the study.

4.5.5 Multiple triangulation

4.5.5.1 An overview

Multiple triangulation (Yin 2003b, Thurmond 2001, Shih 1998), as a research strategy, enhances the construct validity of a case study. Triangulation means the combination of two or more data sources, investigators, methods, theoretical perspectives, or analytical methods within the same study (Ammenwerth et al 2003, Thurmond 2001, Sandelowski 2000, Shih 1998, Morse 1991a). Three triangulation strategies were adopted in this study: data, method and analysis triangulation.

4.5.5.2 Data triangulation

This refers to the use of multiple data sources with similar foci to obtain different views about a phenomenon for the validation of the findings (Thurmond 2001, Shih 1998, Begley 1996). Yin (2003a, 2003b) suggests that data triangulation is a central case study research strategy for enhancing construct validity. The data obtained from nurses and patients were used to validate the data obtained from the nurse-patient interaction. The use of these sources added breadth and depth, and validated the congruence of the findings about the phenomenon from different sources and perspectives (Shih 1998).

4.5.5.3 Method triangulation

The adoption of method triangulation is one of the major strengths of the case study design. It has also been called multi-method, mixed-method or methodological triangulation (Thurmond 2001, Sandelowski 2000). Thurmond (2001, p253) suggests that the advantage of using method triangulation is:

> "To decrease, negate, or counterbalance the deficiency of a single strategy, thereby increasing the ability to interpret the findings".

Although taping the interactions was the "gold standard" (Wilson and McDonald 1994) and covered each nurse-patient interaction and its contextual features in real time (Yin 2003b, Elasy et al 2001, Harachi et al 1999, Pill et al 1998), it may have suffered from some limitations, one of which is that only external features (the interaction) of the nurses and patients, but not their thoughts, could be captured. This writer therefore included other data collection methods, semi-structured interviews and nursing documentation, to overcome this limitation. In addition, quantitative methods of data collection were also employed, including the administration of instruments and the collection of the patients' glycaemic levels.

4.5.5.4 Analysis triangulation

The third triangulation strategy that was adopted in this study was analysis triangulation (Shih 1998). This writer adopted two analytical strategies to analyse the major data-set of the taped nurse-patient interaction data. The analytical strategies included an established interaction analysis system, the RIAS (Roter and Larson 2002), and the ESAS that was developed specially for this study. The need to use both analytical strategies is argued in Section 4.5.3.2.3.

Although the RIAS offered a well-established system for counting the communication aspects of the education encounters for comparison with international studies, the ESAS provided valuable empirical findings about the use of education strategies that studies have not reported. In addition, the qualitative mode (immersion and crystallisation) of the ESAS added an inductive dimension to the analysis, which helped reveal the multi-faceted nature of nurse-patient encounters in a diabetes education context to give a more complete understanding of the education process. The findings from both strategies validate and complement each other (Chapter Five). For example, the frequent use of questioning by the nurses as identified by the RIAS is congruent with the common use of nurse-centred assessment as identified by the ESAS analysis.

To conclude, multiple triangulation did not only confirm the findings, but also offered the completeness of findings (Meetoo and Temple 2003, Shih 1998), and thus in this case study a more complete and valid account of the education process was achieved.

4.5.6 Rigor of the Study

To ensure the rigor of case studies, Yin (2003b) suggests four design tests that are commonly applied to judge the quality of empirical research: construct validity, internal validity, external validity and reliability. Yin (2003b) suggests that the concepts of trustworthiness, credibility, confirmability and data dependability (Denzin and Lincoln 1994, Miles and Huberman 1994) underline these tests. Riege (2003), in reviewing the work of Miles and Huberman (1994) and Denzin and Lincoln (1994), argues that both sets of tests are parallel to each other, and enhance the rigor of case study methods. Credibility, transferability and dependability are analogous to the functions of internal validity, external validity and reliability, respectively. Confirmability is analogous to the notion of neutrality and objectivity in positivism, and corresponds closely to construct validity.

In this study, construct validity (confirmability) was ensured by the use of multiple sources of evidence in the data collection period (Riege 2003, Yin 2003b) to examine the education process for diabetes self-management (4.5.5.2). Yin (2003b) suggests the further tactic of employing a chain of evidence that explicitly links the questions asked, the data collected and the conclusion drawn. In this study, a chain of evidence was ensured in several of the stages, initially in the development of the theoretical framework and theoretical propositions, and subsequently in the identification of sources and methods of data collection. During the data collection, a chain of evidence was established by transcribing verbatim the interaction and interview tapes. In addition, memo writing and an audit trail were used. These techniques allowed the supply of sufficient citations and the crosschecking of particular sources of evidence.

Internal validity (credibility) (Riege 2003, Yin 2003b), which is defined as the establishment of phenomena in a credible manner, was enhanced by the use of rival theories, multiple triangulation strategies, crosschecking the findings across sub-units of analysis and pattern matching logic. The instruments that were employed in this study, C-DES and C-HCCQ, have been previously validated in HK Chinese people (Shiu et al 2003, Lee and Shiu 2004). The academic supervisor helped with the crosschecking of the results of each sub-unit of analysis.

External validity (transferability) (Riege 2003, Yin 2003b), which is defined as analytical generalisation whereby particular findings are generalised to a broader theory (Riege 2003), was assured by using a prior theory (the theoretical framework) to guide the research design, including the definition of the scope and boundaries of the study during the design phase and comparison with the emerging pattern in the data analysis phase. In addition, the thick description of the context and findings of the case allows readers to judge the transferability of the findings. This issue is addressed in the "Limitations" section of this chapter (4.4.4).

Reliability (dependability) (Riege 2003, Yin 2003b) is defined as the demonstration of the operations and procedures of the research so that they can be replicated with similar findings. In this study, reliability was assured by giving an accurate account of the theoretical principles and ideas that were adopted for each phase of the study, recording the data collection methods and procedures and developing a case study database as an audit trail.

4.5.7 Ethical Considerations

Ethical approval, access and the rights of participants are reported and addressed earlier in this chapter. Throughout the study, this writer ensured the confidentiality of the nurses and patients and the case study centre by disclosing no names. The anonymity and confidentially of all personal data were strictly maintained. This writer controlled all the data, and the RAs signed an appointment letter that bound them to keep all the data confidential. No other person had access to the raw data.

Although identity of the centre was not revealed, this writer describes its characteristics to enable readers to understand the context of the study, and to enable the transferability of the findings from this case to other settings. It is possible that the description may lead some readers to identify the centre and thus the nurses, but they were well aware of this possibility when they agreed to participate.

4.5.8 Summary

This chapter outlines this writer's philosophical stance and the theoretical framework of this study. The methodology is explained and a rationale is provided for the adoption of the embedded, single-case study design, which is based on the need to obtain an in-depth understanding of the process of diabetes education in a nurse-led diabetes education centre in HK. This chapter reports the development of the ESAS for analysing the use of education strategies based on the theoretical models of diabetes education. The use of multiple triangulation and the rigor of the study are described. The next two chapters present the findings of the study.

Chapter Five - Findings: Nurse-patient Interaction and Patient Outcomes

5.1 Introduction

This chapter and the next present the study findings from each of the four sub-units of analysis to provide answers to the overall research question of what happens in the education process for diabetes self-management within the context of nurse-patient encounters. This chapter reports the findings from the first two sub-units of analysis. Section 5.2 reports the contextual background within which this study is situated to provide a background for interpreting the case findings. Section 5.3 reports the findings on the communication styles of the nurses and patients, and the education strategies adopted by the nurses, thus providing answers to the first research objective. Section 5.4 reports the findings on the patient outcomes and provides answers to the second objective.

5.2 Contextual background

5.2.1 Cultural context within which this study is situated

HK had been a British colony until its return to China as a Special Administrative Region in 1997. In the 1900s, HK was a sparsely populated island with a few fishing villages. Today HK is known to be one of the world's busiest commercial, financial and corporate markets. With its historical and political features, HK is the global gateway to mainland China and the hub of international travel. These features contribute to the melting pot of HK, a place where the cultures and traditions of East and West are blended together, creating a dynamic and unique cosmopolitan society. The description below outlines some snap shots of the cultural context within which this study is situated.

HK has a population of seven million, of which 95% are Chinese. The official languages are Chinese and English. Although most citizens are bilingual, Cantonese is the most common spoken Chinese dialect. HK is geographically compact. The majority of citizens live in small apartments in high-rises.

Multi-generation-family households have become less popular, which is in part due to housing expenses and also relates to the Western influence of nuclear families. However, a norm in HK is the support provided by grandmothers in terms of caring for grandchildren and assisting in household chores. This norm is related to family values of Chinese culture.

HK is a vibrant city. Citizens rely on the convenient public transportation, in the form of buses, trains, and ferries, which runs from 05:00 to 01:00 all year round. Offices and banks are open from 09:00 to 17:00 on weekdays and 09:00 to 13:00 on Saturdays. Shops open from 10:00 to 22:00 all year round. One of the most common shops in HK is the restaurant. HK's cuisine is renowned for its exotic fusion of Eastern and Western flavours.

An interesting phenomenon is that many citizens start the day with morning tea in Chinese teahouses, which are busy with people. The morning tea culture is a symbol of enjoying life. Chinese citizens go to teahouses early in the morning to drink pots of Chinese tea, eat dim sum (snacks such as steamed barbecue pork buns, shrimp dumplings, and beef balls served in steaming bamboo baskets), read newspapers and meet friends. Although Chinese tea helps digestion, most dim sum items have a high fat content.

Eating is more than a physical necessity for Chinese. Offering food to each other is a gesture to show concern and courtesy. Providing abundant delicious food items is typical in social and business gatherings and during festivals. Each year there are approximately twelve traditional Chinese (e.g., Chinese New Year, Mid-Autumn Festival, Winter Solstice) and Western festivals (e.g., New Year, Valentine Day, Christmas). Festive feasting is common. This cultural practice poses temptations to individuals with diabetes who need to watch out for the timing, type and amount of food to consume.

Chinese culture favours the virtues of submission, humility, tolerance and hierarchy (Chen 2001, Bond 1996, Legge 1971), and is strongly influenced by Confucianism (Li 2003), which is not a religion but teaches a moral code based on human relations. Harmony is the foundation of Chinese culture (Gao et al 1996, p283), and is maintained by communication strategies that are role-appropriate (See Section 7.2.1.2). The Chinese cultural practices of face saving (being self-sufficient and taking care of issues within the family) and respecting authority appear to be ingrained in the cultural context (Chen 2001, Cheng 1997, Gao et al 1996, Garenya and Hwang 1996).

To save face, needs and problems are managed within the family unit or insiders (individuals with whom one has established a special relationship). Exposing problems to outsiders is considered as losing face. For example, some people affected by diabetes prefer keeping it within the family to avoid losing face.

Employees in HK are hard working and loyal to their employers, which is a reflection of the Chinese values of self-sufficiency and respecting employers as authority (Bond 1996). Concerning employment, HK citizens have faced a hard time since 2000. It is in part due to recession on a worldwide scale and also due to globalisation. There has been stronger competition from other economies in the Asian region. HK has been undergoing structural changes to become a knowledge-based economy, but there is a mismatch in knowledge and skill amongst middle-age-workers, which has led to a persistent rise in unemployment.

The anti-discrimination ordinance stipulates that employees should not be discriminated against because of chronic illness. However, the enforcement of this ordinance appears difficult. Many individuals with diabetes prefer keeping their condition a secret to avoid discrimination (Shiu and Wong 2002), which may lead to an extra burden in dealing with self-management activities such as BGSM and attending follow-up appointments.

HK adopts its public health system and nursing system from the British model (Chan 2002). Under the "one country two systems policy", the current public health structure has retained most of the British characteristics since the return to Chinese rule. The combined effects of vaccination and a more developed nursing care system since the 1950s had facilitated the acceptability of Western medicine (Nigel 1991). It remains the prevailing health seeking behaviour and public healthcare provides the safety net to the majority of citizens with only a minority buying health insurance (Leung et al 2005).

The public health system has faced many criticisms, including the lack of continuity in hospital and community care, inadequate private public interface, medical dominance and non-sustainability of the healthcare finance (Harvard Report 1999). Although HK citizens enjoy low cost public healthcare (HK $60 for each consultation, approximately five pound sterlings), citizens affected by chronic illnesses receive medical follow-up facilities only three to four times yearly with each consultation lasting 5 to 10 minutes. Due to inadequate funding for chronic care, the medical and nursing care provision in this aspect is overstretched. Patients have to wait for their turn in clinics for hours due to heavy patient load. Interestingly, anecdotal evidence shows that patients remain quiet during consultation, which may be related to the time pressure and Chinese culture.

5.2.2 Practice characteristics of the case study centre

The sampled nurse-led education centre, which was set up in 1991, is under the governance of the Hospital Authority of HK (Appendix 6). Unlike in England, all the sixteen diabetes education centres in HK are attached to acute hospitals. The case study centre is located within one of the two university teaching hospitals in HK, and belongs to a diabetes care unit that is made up of a multidisciplinary team. This consists of diabetologists, diabetes nurses, dieticians, chiropodists and social workers. At the time of the study, there were five diabetes nurses in the centre, two of whom were nurse specialists.

The diabetes care unit published a manual for health professionals that outlines guidelines for diabetes care and education (Chan et al 1998). The manual advocates the use of "patient empowerment: making the patient a member of the management team and emphasising the importance of self-care" as an approach to "therapeutic patient education" (Chan et al 1998, p30). Although the Hospital Authority does not provide any explicit guidelines on diabetes care and education, this manual is widely referenced. The Hospital Authority awarded this unit the accolade of The Best Health Care Team in 1999.

In the year 2002/2003, the average caseload at the centre was eight patients per nurse per day. Patients pay a fee for each attendance to the education programme, which is the same amount as payment for attending a medical consultation, HK $60. In addition to providing centre-based services, nurses undertake daily ward visits to the hospital in which the centre is housed, to provide services to in-patients.

Having been a university teaching site since its establishment, the centre is accustomed to various types of research and clinical teaching activities. Since January 2002, the centre has been the clinical attachment site for a 12-month part-time Professional Diploma Programme in Diabetes Management and Education. Diabetes nurses act as role models to trainees, who include nurses, dieticians, chiropodists, pharmacists and doctors. Nurses and patients at the centre are used to being observed during education activities.

The centre offers a range of diabetes education programmes (Appendix 6). The sampled one-to-one programme is offered to patients referred by their doctor to the centre for diabetes education because they have "poor glycaemic control" or show "inadequate self-monitoring" (4.5.2).

The patient enrolment is organised such that each patient is assigned a named nurse when they first enrol for diabetes education. However, new patients who attended the sampled programme were assigned to one of the two nurse specialists. Usually, patients who have previously attended the centre are allocated to the same named nurse for continuity of care, unless the encounter occurred more than two years ago. When this happens, one of the two nurse specialists takes over the patients for care. Because of this pattern of assigning named nurses, the nurse specialist who had the longest years of service in the centre acquired more patients in the sampled programme, which caused uneven distribution of patients from each of the nurses.

The length, frequency and number of episodes in nurse-patient encounters in the sampled programme varied according to the condition of individual patients. The named nurse decided on the interval between one nurse-patient encounter and the next. The usual frequency of attendance was one to three monthly until the BG was stable.

Observation by writing field notes in the case study centre was possible because the nurses opted to be interviewed in the centre. Appendix 12, Analysis of Field Notes, depicts the physical setting of the centre and substantiates the theme of a busy centre and the three sub-themes of vibrant activity, frequent interruptions and time pressure.

5.3 Nurse-patient interaction: First sub-unit of analysis

5.3.1 Descriptive statistics

During the six-month data collection period for the nurse-patient interaction data, audio-taping of the interactions was conducted whenever the patients attended the education programme. Twenty patients were purposively sampled using the selection criteria (4.5.2.4). Table 9 displays the demographic, clinical and attendance characteristics of the patient sample.

Table 9

Demographic, clinical and attendance characteristics of patients (N = 20)

		n	%
Age (years) [1]	28-59	13	65
	60 or above	7	35
Gender	Male	8	40
	Female	12	60
Marital status [2]	Married	13	65
	Not married	7	35
Education level	No formal	4	20
	Primary	9	45
	Secondary	6	30
	Post university	1	5
Employment status	No	16	80
	Yes	4	20
Type of diabetes	Type 1	3	15
	Type 2	17	85
Duration of diabetes (years) [3]	1-10	11	55
	>10	9	45
Diabetes complications	None	9	45
	Yes	11	55
Treatment therapy	Oral hypoglycaemic agents	8	40
	Insulin	5	25
	Both	7	35
Attendance status [4]	Case closed	12	60
	Continuing	8	40

[1] Mean = 55.2 years, SD = 11.9

[2] Not married included single, divorced, separated or widowed

[3] Mean = 11.1 years, SD = 6.8

[4] Case closed and Continuing = patients who had been discharged and were attending the programme at the end of the six-month data collection period, respectively.

The patients had two to six encounters with their individual named nurses, which yielded 69 (43 hours) nurse-patient encounters. The length of each encounter ranged from 20 to 62 minutes (mean = 39, SD = 12). Most (80%) of the tapes were over 30 minutes long. There were 20 nurse-patient encounters each in the first and second visits, 13 in the third visit, 8 in the fourth visit, 5 in the fifth visit, and 3 in the sixth visit. In relation to the length of time between follow-up appointments, 22 (45%) occurred after an interval of one month, 21 (43%) after two months, and 6 (12%) encounters after 3 months.

According to the routine system of patient allocation, one of the five nurses who had the longest working experience at the centre had the greatest load of patients in the programme. N 5 had 40 episodes (10 patients) of nurse-patient encounters, whereas N 4 had 11 (4 patients), N 3 had 8 (3 patients), and N 1 had 10 (3 patients). N 2 had one patient, but this patient passed away after the first visit. Chapter Four displays each nurse's demographic data and clinical experience (Table 5), and each patient's demographic, clinical and attendance characteristics (Table 6).

5.3.2 Communication style of the nurses and patients

5.3.2.1 Consistency of communication styles

The RIAS was used to code the interaction data. For analysis, raw frequencies of the utterances coded into each composite RIAS variable were converted to proportions (%) of the total utterances for the speaker in that encounter, following the convention used in other RIAS studies (Roter et al 2001). Although this study does not aim to demonstrate the differences in communication styles of individual nurses and patients, because of the uneven distribution of nurse-patient encounters amongst the four nurses it is imperative to determine whether there are differences in the overall pattern for nurses and patients. Table 10 displays the percentage of each composite RIAS variable across the four nurses, and shows a consistent overall pattern of communication style amongst them, with only small percentage point differences. For example, amongst the four nurses, N 4 made the least number of utterances in two RIAS variables, "Back channel" and "Agree" and the most in "Counsels – lifestyle".

Table 11 and Table 12 display the percentage of each RIAS composite variable for the nurses and patients across the first, second and overall visits. The percentage of utterances in each composite variable is stable across the visits, and therefore the following analyses are conducted at the level of the group (nurses' and patients') means of the overall visits, unless stated otherwise. Table 13 shows the comparison between the nurses and patients across eight categories of communication, and indicates differences in communication style between them.

Table 10

Comparison of communication style across the four nurses (RIAS)

% RIAS variables (Abbreviation)	N 1 (n = 20)		N 3 (n = 8)		N 4 (n = 11)		N 5 (n = 40)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Duration (min)	39.0	7.3	42.6	18.4	48.2	16.6	33.4	13.3
Socioemotional*	28.3	8.1	29.0	13.5	14.4	6.6	27.4	8.9
1. Personal (Pers)	0.4	0.4	0.4	0.6	1.7	3.2	1.4	2.3
2. Laughs (Laugh)	0.7	0.5	0.1	0.3	0.1	0.2	0.7	1.4
3. Approve (Appr)	0.1	0.1	0.2	0.2	0.3	0.6	0.5	1.1
4. Compliments (Comp)	0	0	0.1	0.1	0.1	0.1	0.8	4.8
5. Agreement (Agree)	9.9	3.2	10.0	4.2	4.9	1.7	7.5	3.4
6. Back-channel (BC)	9.7	3.4	13.6	9.6	5.2	2.6	9.5	5.9
7. Empathy (Empa)	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.5
8. Concern (Conc)	1.3	0.9	0.5	0.4	0.7	0.7	1.8	1.5
9. Reassurances (R/O)	0.5	0.4	0.5	0.7	0.1	0.3	0.8	1.1
10. Legitimises (Legi)	0	0	0	0	0	0	0	0
11. Partnership (Part)	0	0	0	0	0	0	0	0
12. Self-disclosure (Sdis)	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2
13. Disapprove (Disa)	0.3	0.3	0.5	0.5	0.4	0.7	0.3	0.4
14. Criticism (Crit)	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2
15. Asks for Reassurance (?rea)	3.0	1.1	0.5	0.3	0.2	0.2	2.0	1.5
16. [Asks] psychosocial/feelings ([?]psy-f)	0.1	0.2	0	0	0.1	0.1	0.5	1.1
17. Asks psychosocial/feelings (?psy-f)	0.1	0.1	0	0	0.3	1.1	0.1	0.4
18. Counsels - psychosocial/feelings (C-psy-f)	2.0	4.0	2.3	4.4	0.1	0.2	1.2	3.6
Task-focused*	71.3	8.3	70.7	13.6	85.1	6.5	71.9	9.3
1. Transition (Tran)	1.3	0.8	0.7	0.6	0.4	0.5	1.0	1.0

2. Orientations (Orie)	0.8	0.5	1.1	0.6	1.5	1.1	2.2	2.3
3. Paraphrase (Check)	2.4	1.2	1.4	1.2	2.6	1.4	3.4	2.3
4. Bids for repetition (Bid)	0	0	0	0	0	0	0.1	0.1
5. Asks for understanding (?und)	0.5	0.6	0.2	0.2	0.5	0.8	0.3	0.4
6. Ask for opinion (?Opi)	2.4	1.1	2.2	1.5	1.4	2.0	2.8	1.7
7. [Asks] medical condition ([?]med)	0.9	0.6	1.2	1.7	2.1	1.7	4.1	3.8
8. [Asks] therapeutic regime ([?]thera)	3.1	1.2	2.0	1.2	2.8	2.0	5.1	2.4
9. [Asks] lifestyle ([?]L/S)	4.3	2.0	6.2	5.2	6.8	6.1	8.5	5.0
10. [Asks] other ([?]oth)	0.3	0.5	0.1	0.1	0.2	0.3	0.4	0.6
11. Asks medical condition (?med)	0.4	0.5	0.4	0.3	0.1	0.1	0.6	0.8
12. Asks therapeutic regime (?thera)	0.4	0.4	0.3	0.4	0.1	0.1	0.4	0.6
13. Asks lifestyle (?L/S)	1.1	0.6	0.9	0.9	0.2	0.3	1.0	0.8
14. Asks other (?oth)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
15. Gives info – medical condition (G-med)	0.6	0.6	0.6	0.9	2.0	2.3	2.9	4.4
16. Gives info – therapeutic regime (G-thera)	1.2	0.8	0.6	0.3	1.0	1.5	1.6	1.6
17. Gives info – lifestyle (G-L/S)	2.7	1.1	2.8	2.2	4.2	4.3	3.6	3.5
18. Gives info – other (G-oth)	0.4	0.3	0.1	0.1	6.3	0.5	0.8	1.3
19. Counsels – therapeutic (C-thera)	10.6	4.8	4.8	3.8	10.1	8.5	6.5	9.3
20. Counsels – lifestyle (C-L/S)	37.8	9.9	45.0	12.5	48.7	17.7	26.9	16.2
Unintelligible (Unin)	0.4	0.3	0.3	0.2	0.5	0.4	0.7	0.8

* Task-focused to socioemotional utterance ratio: N 1 = 2.5, N 3 = 2.4, N 4 = 5.9, N 5 = 2.6.

Table 11

Nurse communication style across visits (RIAS)

% RIAS variables (Abbreviation)	First visit (n = 20)		Second visit (n = 20)		Overall (n = 69)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Socioemotional*	23.3	9.8	26.3	9.3	25.6	10.2
1. Personal (Pers)	0.5	0.6	1.2	2.4	1.2	2.2
2. Laughs (Laugh)	0.4	0.5	0.5	0.8	0.6	1.1
3. Approve (Appr)	0.5	0.8	0.3	0.5	0.4	0.9
4. Compliments (Comp)	0.1	0.1	0.1	0.1	0.5	3.7
5. Agreement (Agree)	7.4	3.1	8.1	4.1	7.7	3.6
6. Back-channel (BC)	10.0	6.9	10.3	7.0	9.3	6.1
7. Empathy (Empa)	0.2	0.6	0.2	0.3	0.2	0.4
8. Concern (Conc)	1.3	1.1	1.3	1.2	1.4	1.3
9. Reassurances (R/O)	0.4	0.8	0.9	1.1	0.6	0.9
10. Legitimises (Legi)	0	0	0	0	0	0
11. Partnership (Part)	0	0	0	0	0	0
12. Self-disclosure (Sdis)	0.1	0.2	0.1	0.1	0.1	0.2
13. Disapprove (Disa)	0.5	0.5	0.4	0.5	0.3	0.4
14. Criticism (Crit)	0.1	0.1	0.2	0.2	0.1	0.2
15. Asks for Reassurance (?rea)	1.2	1.1	1.6	1.8	1.7	1.5
16. [Asks] psychosocial/feelings ([?]psy-f)	0.1	0.3	0.4	1.0	0.3	0.8
17. Asks psychosocial/feelings (?psy-f)	0.1	0.3	0.3	0.9	0.1	0.5
18. Counsels - psychosocial/feelings (C-psy-f)	0.5	1.4	0.7	1.7	1.2	3.4
Task-focused*	76.0	10.2	73.1	9.7	73.8	10.4
1. Transition (Tran)	1.3	0.9	1.1	1.2	0.9	0.9
2. Orientations (Orie)	2.5	3.0	1.5	1.2	1.7	1.9
3. Paraphrase (Check)	3.3	2.0	3.1	2.5	2.9	2.0
4. Bids for repetition (Bid)	0	0	0.1	0.1	0.1	0.1
5. Asks for understanding (?und)	0.4	0.4	0.5	0.7	0.4	0.5
6. Asks for opinion (?Opi)	2.3	1.3	2.4	1.8	2.5	1.7
7. [Asks] medical condition ([?]med)	3.0	2.4	2.8	3.5	3.0	3.2
8. [Asks] therapeutic regime ([?]thera)	4.3	2.3	3.8	2.8	4.1	2.4

9. [Asks] lifestyle ([?]L/S)	8.7	5.9	6.8	4.5	7.4	5.0
10. [Asks] other ([?]oth)	0.6	0.8	0.2	0.4	0.3	0.5
11. Asks medical condition (?med)	0.3	0.4	0.7	1.0	0.5	0.7
12. Asks therapeutic regime (?thera)	0.2	0.4	0.3	0.6	0.3	0.5
13. Asks lifestyle (?L/S)	1.0	0.9	0.7	0.7	0.9	0.8
14. Asks other (?oth)	0.1	0.1	0.1	0.1	0.1	0.1
15. Gives info – medical condition (G-med)	2.2	2.7	2.9	5.2	2.2	3.6
16. Gives info – therapeutic regime (G-thera)	1.3	1.4	1.1	1.0	1.3	1.4
17. Gives info – lifestyle (G-L/S)	4.5	4.2	2.5	1.3	3.3	3.3
18. Gives info – other (G-oth)	1.0	1.8	0.3	0.4	0.5	1.1
19. Counsels – therapeutic (C-thera)	8.3	9.4	5.3	6.0	7.5	8.3
20. Counsels – lifestyle (C-L/S)	30.9	14.8	37.3	19.0	34.1	17.5
Unintelligible (Unin)	0.7	0.8	0.6	0.7	0.6	0.7

* Task-focused to socioemotional utterance ratio: First visit = 3.3, second visit = 2.8, overall = 2.9.

Table 12

Patient communication style across visits (RIAS)

% RIAS variables (Abbreviation)	First visit (n = 20)		Second visit (n = 20)		Overall (n = 69)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Socioemotional*	35.1	13.8	32.5	11.1	35.0	14.7
1. Personal (Pers)	0.4	0.8	0.7	1.2	1.4	3.3
2. Laughs (Laugh)	0.9	0.9	1.2	1.6	1.0	1.3
3. Approve (Appr)	0.3	0.5	0.4	0.7	0.5	0.8
4. Compliments (Comp)	0.1	0.1	0.1	0.3	1.3	7.3
5. Agreement (Agree)	31.4	13.5	28.3	11.2	27.8	12.7
6. Empathy (Empa)	0	0	0	0	0.1	0.1
7. Concern (Conc)	0.4	0.4	0.3	0.6	0.3	0.5
8. Reassurances (R/O)	0.1	0.1	0	0	0.1	0.1
9. Legitimises (Legi)	0	0	0	0	0	0
10. Disapprove (Disa)	0.9	0.9	0.7	0.7	0.9	1.1
11. Criticism (Crit)	0	0	0	0	0.1	0.2
12. Asks for Reassurance (?rea)	0.3	1.0	0.4	0.6	0.3	0.7
13. [Asks] psychosocial/feelings ([?]psy-f)	0	0	0	0	0	0
14. Asks psychosocial/feelings (?psy-f)	0	0	0	0	0	0
15. Give info – psychosocial/feelings (G-psy-f)	0.5	1.5	0.3	1.1	1.7	5.8
Task-focused*	62.9	13.4	66.1	11.1	63.3	15
1. Transition (Tran)	0	0	0.1	0.4	0.1	0.2
2. Orientations (Orie)	0.2	0.4	0.4	1.4	0.2	0.8
3. Paraphrase (Check)	0.9	2.0	0.1	0.3	0.4	1.1
4. Bids for repetition (Bid)	0	0	0	0	0	0
5. Asks for understanding (?und)	0	0	0	0	0	0
6. [Asks] medical condition ([?]med)	0.6	0.7	0.9	1.8	0.7	1.4
7. [Asks] therapeutic regime ([?]thera)	1.1	1.1	0.6	0.7	1.2	2.7
8. [Asks] lifestyle ([?]L/S)	2.5	3.2	1.7	2.0	1.5	2.3
9. [Asks] other ([?]oth)	0.1	0.1	0.1	0.2	0.1	0.2
10. Asks medical condition (?med)	0.1	0.1	0	0	0.1	0.1
11. Asks therapeutic regime (?thera)	0.1	0.1	0.1	0.1	0.1	0.1

12. Asks lifestyle (?L/S)	0.1	0.1	0.1	0.2	0.1	0.2
13. Asks other (?oth)	0.1	0.1	0.1	0.2	0.1	0.2
14. Gives info – medical condition (G-med)	10.7	5.8	11.1	6.8	10.7	6.5
15. Gives info – therapeutic regime (G-thera)	13.3	7.5	13.8	8.5	14.5	8.8
16. Gives info – lifestyle (G-L/S)	31.3	13.4	35.8	12.4	32.1	13.6
17. Gives info – other (G-oth)	2.2	2.5	1.3	2.1	1.5	2.1
18. Requests services/medication (?serv)	0.1	0.3	0.1	0.1	0.1	0.2
Unintelligible (Unin)	2.0	1.6	1.4	1.1	1.7	1.5

*Task-focused to socioemotional utterance ratio: First visit = 1.8, second visit = 2, overall = 1.8.

Table 13

Comparison of the communication style of nurses and patients (RIAS)

		First visit (n = 20)		Second visit (n = 20)		Overall (n = 69)	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
Duration (min)		47.8	18.3	33.0	12.7	38.0	14.7
Total utterances[1]							
	Nurse	732	339	540	289	577	282
	Patient	508	224	398	258	403	215
% Socioemotional							
	Nurse	23.3	9.8	26.3	9.3	25.6	10.2
	Patient	35.1	13.8	32.5	11.1	35.0	14.7
% Task-focused							
	Nurse	76.0	10.2	73.1	9.7	73.8	10.4
	Patient	62.9	13.4	66.1	11.1	63.3	15.0
% Questions							
	Nurse	22.2	8.7	20.4	10.7	21.3	9.5
	Patient	4.7	4.2	3.8	3.3	4.1	4.4
% Open-ended questions							
	Nurse	5.5	2.9	6.4	3.6	6.3	3.3
	Patient	0.6	1.0	0.6	0.8	0.6	0.8
% Closed-ended questions							
	Nurse	16.6	8.6	14.1	9.8	15.0	8.7
	Patient	4.2	4.3	3.2	3.1	3.5	4.2
% Information giving[2]							
	Nurse	48.7	13.2	50.0	14.3	50.2	13.2
	Patient	57.5	7.3	62.0	7.5	58.8	7.8
% Positive talk[3]							
	Nurse	10.2	4.4	11.2	4.6	11.2	5.5
	Patient	33.0	13.5	30.4	11.1	30.8	12.0

[1] Nurse to patient utterance ratio: First visit = 1.4, second visit = 1.4, overall = 1.4

[2] Information giving includes RIAS variables of "Gives information", and for nurses also includes two additional variables on "Counsels".

[3] Positive talk includes eight RIAS variables: Laughs, Approve, Compliment, Agree, Empathy, Concern, Reassure, and Legitimises.

5.3.2.2 First visits

As displayed in Table 13, the mean length of the first visits (Mean = 48 minutes, SD = 18) was longest, and that of the sixth visits (n = 3) was the shortest (Mean = 31 minutes, SD = 3).

5.3.2.3 Nurses spoke more

The nurses spoke more than their patients. Table 13 shows that the nurse to patient utterance ratio for all of the visits is consistent at 1.4. The mean utterances per minute for the nurses and patients is 15.3 and 10.7, respectively.

5.3.2.4 Task-focused

The overall exchange of both the nurses and patients shows a task-focused communication style. The overall task-focused to socioemotional utterance ratio for the nurses is 2.9, and for the patients is 1.8 (Table 11 and Table 12), which demonstrates that the nurses were more task-focused than the patients. The nurses' task-focused to socioemotional utterance ratio is at 3.3 at the first visit, but this ratio decreases in the second (2.8), third (3), fourth (3.1), fifth (2.3) and sixth (1.8) visits, with the smallest ratio occurring at the sixth visit.

5.3.2.5 Closed-ended questions

The RIAS variables of questions and information giving constituted the majority of task-focused utterances. As shown in Table 13, the nurses asked five times more questions than the patients did. The nurses' questions comprise one-fifth of the total utterances. The ratio of closed- to open-ended questions for nurses is 2.4, which indicates that the majority of questions the nurses asked were closed-ended.

The pattern of asking more closed-ended questions also applied to the patients, whose closed- to open-ended question ratio is 5.8. Although the patients asked questions infrequently, as is shown in Table 12, when they did ask questions they were mainly related to lifestyle (closed-ended). The patients seldom asked for services or medications.

5.3.2.6 Information giving and lifestyle issues

As shown in Table 13, the RIAS variables of information giving constitute half of the utterances of both the nurses (Mean = 50.2%) and the patients (Mean = 58.8%). Table 11 and Table 12 show that across the information giving variables, the majority of topics are related to lifestyle (Nurses, Mean = 38.6%; Patients, Mean = 32.1%).

The information giving topics on lifestyle as coded from the nurses' utterances have the following distribution. At the first visits, diet was the subject of 34% of all of the lifestyle utterances. Other topics included BGSM (29%), sick-day management (27%), exercise (6%), weight control (2%), footcare (1%) and others (1%, including travelling and stress management).

This pattern of information giving with lifestyle issues as the focus is consistent across all the visits, with the case-closed visits (n = 12) involving more footcare (14%) and travelling (3%) issues, and less utterances on diet (25%) and BGSM (24%).

5.3.2.7 Patients engaged more in agreement

In relation to the socioemotional aspect of exchanges, Table 11 shows that the nurses made no attempt to emphasise "Partnership" in their speech, and there were a few discussions on psychosocial or emotional issues. The eight RIAS variables of the socioemotional aspect are grouped together in the category of positive talk, following Hampson et al (1996). As shown in Table 13, the patients engaged in as much as three times more positive talk than the nurses. The majority of the patients' positive talk was related to agreeing (Table 12), which, according to the interaction data, mostly involved only one to two words such as "yes", "good", or "I see". The patient to nurse agreeing ratio was 3.6 for the overall visits.

5.3.2.8 Frequent interruptions

It was common to hear the public address system calling health staff to attend to a range of issues. There were an average of 5 interruptions per visit, including 1.9 interruptions from the public address system, 1.3 interruptions from telephones ringing, 1.1 interruptions from other patients or staff intruding into the nurse-patient interaction and 0.7 interruptions from nurses answering telephone calls. Despite the interruptions, there were minimal unintelligible utterances from both the nurses (Mean = 0.6%) and the patients (Mean = 1.7%).

5.3.2.9 Conclusion

The RIAS analysis gives an overall picture of the nurse and patient communication behaviour by means of frequencies and percentages. The analysis indicates that the nurses and patients used a task-focused communication style with nurses controlling the interaction process.

During the analysis, a concern was raised about the RIAS coding system. The nurses might use "Agree" and "Back channel" responses, such as "I see", "oh, really", "yeah", and "mmm", as an active listening skill to help patients talk or vent negative feelings. However, these types of communication behaviour as coded in the RIAS variables do not reflect the use of counselling skills. The nurses sometimes gave direct advice on emotional problems. For example, in 3HKF V1 N1030 the nurse made utterances (see 5.3.3.4.3) in an attempt to persuade a patient to perform BGSM regularly.

In the RIAS coding system, these utterances were coded as "counsels – psychosocial-feelings". However, giving of direct advice does not necessarily constitute counselling. This concern is explored further in the section on the education strategies (5.3.3).

5.3.3 Education strategies adopted by the nurses

5.3.3.1 Commonality

The ESAS was used to code and analyse the interaction data. Table 14 displays the commonality of education strategies in operation, which are divided into the categories of common, occasional and never. "Common" denotes strategies that were used in every nurse-patient interaction series. All of the commonly used strategies belong to the preventive model. Five of the nine commonly adopted education strategies were initially coded as being ideologically neutral in the ESAS: "Assessing self-management ability", "Assessing disease progress", "Providing feedback", "Anticipatory guidance", and "Maximising memory" A close examination of the nurses' interactions in these strategies shows that they dominated and directed, with minimal collaborative behaviour. This observation is supported by the RIAS analysis, which shows that the nurses did not use "Partnership" speech and often used closed-ended questions (15% of the total utterances). These five strategies belong to the preventive model, because they are examples of sick nursing interaction (Macleod Clark 1993).

Five of the seven occasionally used strategies (Table 14) belong to the self-empowerment model. The other two, "Assessing felt need" and "Enquiry-based teaching", being ideologically either belong to the educational or the self-empowerment model. A close examination of the contexts in which the two strategies were used demonstrates that the nurses were not value-free, and thus these two strategies are regarded to belong to the self-empowerment model (4.5.3.2.5).

Although this study does not aim to demonstrate the differences between individual nurses in the application of education strategies, because of the different distributions of nurse-patient encounters amongst the four nurses it is imperative to determine whether there are differences in the overall pattern. The ESAS analysis demonstrates that the commonality of the coded strategies is consistent across the four nurses, with one nurse (N 5) using more "Counselling" strategies. Table 15 displays the coded strategies from a sample visit of each nurse.

Table 14

The commonality of the education strategies in the taped nurse-patient interactions (ESAS)

Descriptive label for the strategies	Master code [1]	Common [2]	Occasional[3]	Never
1. Assessing felt needs	ED or EM		√	
2. Assessing self-management ability		√		
3. Assessing disease progress		√		
4. Assessing motivation	EM		√	
5. Assessing personal and environmental resources	EM			√
6. Providing feedback		√		
7. Traditional teaching	PR	√		
8. Prescribing behaviour change	PR	√		
9. Persuasive communication	PR	√		
10. Enquiry-based teaching	ED or EM		√	
11. Values clarification	ED or EM			√
12. Counselling	EM		√	
13. Facilitating the venting of negative emotion	EM		√	
14. Anticipatory guidance		√		
15. Critical consciousness raising	EM			√
16. Modelling	EM			√
17. Experiential learning activities	ED or EM			√
18. Maximising memory		√		
19. Negotiating a mutually acceptable contract	EM		√	
20. Negotiating sustainable behaviour	PR	√		
21. Mobilising support	EM		√	

[1] The master codes ED, PR or EM denotes the educational model, preventive model or self-empowerment model, respectively. Strategies without a master code are regarded to be ideologically neutral.

[2] Denotes a strategy that was used in every nurse-patient series

[3] Denotes a strategy that was not used with every patient

Table 15

The pattern of the education strategies across the four nurses (ESAS)

N 1 (HKK 1st Visit, 45min, 2 visits)		N 3 (HKF 3rd Visit, 37min, 4 visits)	N 4 (TWM, 2nd Visit, 29min, 2 visits)	N 5 (SOY, 3rd Visit, 26min, 3 visits)
Working		Working	Working	Working
AFN	ASM-s-rep	ADP-BGSM	ASM-s-rep	AFN
ASM-ref	T-info	ASM-s-rep	ADP-BGSM	ADP-BGSM
ADP-BGSM	ADP-oth	T-info	FB-d-p	ADP-drug-re
ASM-s-rep	FB-d-p	FB-smgt	ADP-oth	FB-d-p
FB-d-p	T-info	T-info	FB-d-p	ASM-s-rep
ASM-s-rep	ASM-demo	ASM-s-rep	PBC	ADP-BGSM
FB-smgt	FB-smgt	FB-d-p	AG	FV
ASM-recall	ASM-s-rep	ASM-s-rep	ASM-recall	FB-d-p
PBC	PC	PC	T-info	ASM-recall
ASM-s-rep	PBC	ASM-s-rep	AG	FB-d-p
PBC	ASM-s-rep	FB-d-p	T-info	NSB (drug)
ASM-s-rep	FB-smgt	PBC	ASM-und	PBC
FB-smgt	ASM-demo	ASM-s-rep	FB-d-p	FV
ASM-s-rep	FB-smgt	PC	T-info	
ASM-und	ASM-demo	ASM-und	MM-repe	
T-info	PBC	T-info	ASM-und	
ADP-drug-re	E-info	FB-smgt	T-info	
T-info	PBC	PC	FB-d-p	
ASM-s-rep	PC		T-info	
PBC			ADP-oth	
ASM-s-rep			FB-smgt	
FB-smgt			T-info	
			PBC	
	Closing	Closing	Closing	Closing
	MM-repe	NSB (FU)	MM-aids	MM-repe
	E-info		AG	NSB (FU)
	NSB (FU)		FB-d-p	
	MM-repe		MM-repe	

See Appendix 9 for the key to the abbreviations.

Table 16

The overall pattern of education strategies (ESAS)

Introductory Phase		Working Phase *				Closing Phase
Greetings	→	Assessment	→	Feedback	→	Maximising memory Negotiating sustainable behaviour
		Assessment	→	Prescribing behaviour change		
		Assessment	→	Persuasive communication		
		Assessment	→	Traditional teaching		
		Assessment	→	Facilitating the venting of negative emotion		
		Assessment	→	Anticipatory guidance		

* The sequence of the cycle of assessment-led strategies was different for individual visits.

5.3.3.2 Structure and pattern

5.3.3.2.1 A three-phase structure

The ESAS analysis shows that the education encounters typically had three phases: introductory, working and closing. The introductory phase was short, usually with two to three turns of greetings. There was no orientation of the nature, frequency, and expectations of each party in the first visits. The working phase was long, and during this phase the nurses typically engaged in cycles of assessment and teaching about self-management behaviour. The closing phase was short, but it was longer than the introductory phase. In addition to repeating main points, the nurses invited the patients to choose what time and day of the week they would like to have next education appointment. At the case-closed visits, the closing phase was again short, with nurses stating that no more appointments required, and that the patients could call or drop-in to the centre to reactivate the encounter if they found it necessary. There was no attempt to consolidate what the patients had learned in the series of visits.

5.3.3.2.2 An assessment-led pattern

Table 16 shows the overall pattern of education strategies in the visits. After the short introductory phase, the nurses typically started off the working phase with an assessment. In the first visits, the nurses might start with "Assessing self-management ability – understanding the reason for referral" or "Assessing disease progress – medical history" strategies. In the subsequent visits, the nurses typically started with "Assessing self-management ability", whereby the patients were asked to recall a normal BG range, demonstrate BGSM techniques or report their BGSM readings. Only the occasional application of "Assessing felt needs" and "Assessing motivation" was observed, and no instance of "Assessing personal and environmental resources" was identified.

After the foregoing, the nurses assessed other aspect of self-management ability including dietary and exercise patterns, waking and sleeping time and medication-taking behaviour. The assessment of dietary pattern was very thorough, and included the food items consumed, amount, frequency, timing and way of cooking. Similarly, the assessment of exercise pattern was detailed, and included time, frequency, duration, type of exercise and the extent of physical output at work for those in employment. This finding adds richness to the RIAS finding of lifestyle as the focus of attention (5.3.2.7).

After assessment, the nurses typically adopted "Providing feedback", "Prescribing behaviour change", "Persuasive communication", and "Traditional teaching" strategies to develop the patients' self-management awareness and ability. During the case-closed visits, in the closing phase the nurses typically used "Anticipatory guidance" to provide information on issues such as footcare and travelling.

The nurses might apply the "Maximising memory" strategy to sum up main points from time to time. Patients sometimes raised queries. If the patient raised questions, then the nurses sometimes responded with "Enquiry-based teaching". The patients might complain of psychosocial constraints to self-management, in which case the nurses might apply the "Facilitating the venting of negative emotion" strategy to help them talk. The nurses did not take the lead to assess the patients' psychosocial issues.

In the closing phase, the nurses typically applied the "Maximising memory" strategy to sum up main topics and prescribed behaviour. The nurses also worked around the patients' schedule to fix the next education appointment, thus adopting the strategy of "Negotiating sustainable behaviour".

5.3.3.3 Nurse-centred assessment strategies: Being a detective

When all of the segments coded as assessment strategies were sorted and examined, it was found that they met the needs of the nurses to have a detailed and thorough understanding of the patients' self-management behaviour (lifestyle topics) and disease progress (for example, BGSM readings and laboratory results such as HbA1c levels). The patients did not have much control over the assessment. P stands for patient and N stands for nurse in the excerpts from the transcripts.

(5SOY V1 P93-N112, N210-N2246)
P92 All [BGSM readings] are recorded here.
N93 This is before breakfast, how about [the reading] after breakfast?
. . .
N102 This is 4.4 [mmol/L] before breakfast, but this one is eh (.) eh is 10.4, isn't it?
P103 Yeah, mmm.
N104 That is, after morning tea, it was 10.4.
. . .
N112 But this one is 11.4
. . .
N210 What do you eat for morning tea [in the Chinese tea house]?
P211 One piece of rice roll, half a bowl of congee, then perhaps a piece of hairy melon, or (.) a vegetable dumpling. I can't remember it all. Generally they are vegetable-type foods, like bean spout dumplings.
. . .
N214 OK, then after morning tea, what do you do?
P215 After eating, I go back home and cook the lunch.
N216 When do you eat your lunch?
P217 About one o'clock.
N218 At one o'clock, do you feel hungry before you eat lunch?
P219 No.
N220 How much rice do you eat at lunch?
P221 About five spoonfuls.
N222 Mmm (.) ok, good. So about the dishes, are they non-greasy and non-salty?
P223 The dishes are steamed, I mainly use steaming for cooking, steamed fish (.) or steamed pork.
N224 How many vegetables do you eat?
P225 I eat lot of vegetables, about a catty. I could eat up to half a catty a meal myself.

N226 OK, then what do you do after lunch?
. . .
P237 At about four o'clock I collect my daughter from school and I eat two biscuits.
N238 OK, good, (.) then when do you have your dinner?
. . .
N240 Seven o'clock for dinner, then do you take your tablets at dinner?
. . .
N246 Then you go out for a walk, is that right?

The analysis shows that the nurses played the active role of detective in the assessment to try to find out why the patients were suffering from poor glycaemic control. The patients were largely submissive. One of the nurses vividly expressed this role to a patient.

(3HKF V4 N226-242)
N226 It's [HbA1c level] high, so we need to (.) eh (.) have your usual [BGSM] readings, to see your performance generally. That's important.
P227 Mmm.
. . .
N234 I'd suggest that you try your very best to do at least two to three finger prickings for the doctor's interpretation.
P233 Yeah, good.
. . .
N238 You ask the doctor whether you're fine, but we don't have your readings.
P239 You're right.
N240 How? The same logic as catching a thief.
P241 Catching a thief?
N242 If you don't tell the police the thief's characteristics, then the police cannot catch the thief. The thief may come back and steal your purse again. You didn't reveal the thief's characteristics. You only said it was a man ((Smile)), like this. So many men in HK, how can you ask the police to catch the thief for you?

Most of the questions asked in the assessment segments were closed-ended, which reflects the RIAS findings (5.3.2.5). The patients typically responded by providing the information on lifestyle issues that they were asked for. While the nurses took the patients in the assessment, activating the self-evaluation of the patients was secondary to the detective role.

(3HKF V3 N23-N31)
N23 Eleven o'clock, at night-time you performed this [BGSM]!
P24 Last night, that was (.) originally I wanted to (.) prick two hours after dinner (.) but at that time I was (.) busy.
. . .
P30 The readings are fairly good. That evening was good too.
N31 Eh, (.) let me read them first. I dare not make a judgement without reading them.

The nurses occasionally engaged in "Assessing felt needs". When they did so, the patients might talk about their personal ability or psychosocial issues, but the nurses often ignored the expressed needs, and moved back to the lifestyle issues. This backs up the RIAS findings on task-focused exchanges (5.3.2.4). The nurses did not adopt "Assessing personal and environment resources" to explore issues that might facilitate or hinder the patients' self-management ability.

(3CYW V2 N460-N476)
N460 Do you have any other questions that you want to ask me?
P461 Nothing else.
N462 Understand everything?
P463 Yeah.
. . .
P470 They're [family members] always nagging me.
N471 Yeah, (.) family members like to nag always.
P472 Yeah, (.) they don't let me eat, I'm always hungry
. . .
N476 In that case, you may eat in the afternoon, you don't need to be so miserable. You can eat (.) a little bit more, not just three small biscuits. You can add a small piece of fruit or a small cup of milk.

Of note is the nurse-patient dynamics: the nurses took the lead in detecting problems with patients, who followed their lead by providing the information that was required.

5.3.3.4 Factual knowledge oriented strategies: Being a BG monitor

5.3.3.4.1 Working phase and blood glucose assessment

When all the segments that belong to the first two education strategies were sorted and examined, it was found that at least one strategy was related to the assessment of the BGSM issues such as the reading, recording, techniques or recall of the normal range.

(1HKK V2 N7-P18)
N7 That's good. (.) HKK, please give me your report.
P8 ((3 sec)) What report?
N9 The finger pricking record book.
P11 Oh, that record is a report ((laugh)).
N12 ((Laugh)) Yeah, that's called a report, it's your record [of BGSM readings]. Have you brought your meter with you?
. . .
N17 Mmm, (.) my view is that they are satisfactory.
P18 Mmm.

Whereas the RIAS analysis denoted that 27% of the utterances of the nurses and patients about lifestyle topics are related to BGSM issues, the ESAS analysis reveals that whenever they had the chance, the patients talked about BG control within a total life context, rather than perceiving diabetes self-management to be a stand-alone issue.

(3CYW V1 N130-P153)
N130 As you eat at nine o'clock, you'd better inject [insulin] at 8:30 am. Is that alright?
P131 I inject, then I take my grandson to school, then I go to a tea house for morning tea. That's it [the usual arrangement].
N132 Uhh, that's not too good. Taking your grandson to school takes a long time. Would it be an hour [after injecting] when you eat?
P133 Eh, ((2 sec)) it's not yet nine o'clock. The school opens at 8:30 am, after sending him inside I go to the tea house.
. . .
N140 Defer the injection for 15 minutes, OK?
P141 Mmm.

N142 Unless, you simply send him in and leave.
P143 After seeing him inside, I always leave at once.
. . .
N152 You say to your grandson, wait for grandma to inject, we will leave immediately after the injection.
P153 Mmm.

Of interest again is the nurse-patient dynamics in these segments. The nurses prescribed self-management behaviour that was as close to the ideal as possible. Although the patients sometimes cited difficulties in complying, they usually acquiesced.

5.3.3.4.2 Feedback

After the assessment strategies, the nurses typically provided feedback to patients' on their self-management ability or disease progress. When all of the segments that came under "Providing feedback" were sorted and examined, three characteristics were identified. First, the feedback segments were shorter than the assessments. Second, about half of the segments involved negative feedback on inadequate self-management that led to poor glycaemic control. Third, the purpose of the feedback was more about raising the awareness of poor glycaemic control status amongst the patients. The following is an example of negative feedback.

(4TWM V2 N469-P484)
N469 Yeah, I want to remind you. That is about your weight, reading your last record it was 87.4Kg and now it is 87.1.
P470 Right, right.
N471 It is only a few ounces lower, only a few ounces. If possible, try to get it lower still.
P472 Yes, yes, I will.
N483 It is related to your daily eating in restaurants, so it is a bit poor.
P474 I'm, that is, I'm (.) more careful about eating now, I eat less.

The following is an example of positive feedback. It is however, very much in the "teacher mode".

(1HKK V2 N59-P60)
N59 Eh, HKK, look, although we say that if you keep the readings between 4 and 8 we can give you 100 marks, for you as an elder we say that keeping it below 10 will be very good. You don't need to force yourself to wall. You don't need to push yourself too much. My view is, after reading your average, that while you had once in a while 8.7 and 8, we can say they [BGSM reading] are ideal. I'm giving you 100 marks. Don't try to keep it to 5 after eating. In fact, (.) the concept of keeping it as low as possible is not correct. You can eat. . . . What we need to take care of is the amount. Do you think so?
P60 Yeah, like yesterday I ate a bit more . . .

The nurse-patient dynamics here are also interesting. The analysis shows that with positive feedback the tones of the patients were more relaxed, whereas with negative feedback their tones showed discouragement, some patients became subtly defensive and tension was noticed.

(3CYW V1 N640-675)
N640 Uhh, (.) the readings (.) are really sky high, more than 20 [mmol/L]. What did you eat? You need to ask your daughter to write by the side what you eat. Uhh, here, this day it was 28.3.
P641 28, (.) on that day my husband cooked Russian vegetable soup.
N642 Was it related to your husband? It was you who ate.
P643 I had three bowls.
. . .
P673 What could I do? ((smile)) I love eating.
N674 Yeah, love eating ((smile)).
P675 I agree. ((so what?))

5.3.3.4.3 Prescribing tighter blood glucose control

The nurses, upon detecting problems with self-management that might be causing poor glycaemic control, employed the strategy of "Prescribing behaviour change" to ask for more stringent control. In addition, the nurses employed the two education strategies of "Prescribing behaviour change" and "Persuasive communication" together, the former strategy being used at every visit. The nurses sometimes employed "Persuasive communication" to change the patients' attitudes and beliefs with a view to motivating them to comply. The interaction skills of the nurses in these strategies were directive and didactic, whereas the patients were passive but acquiescent.

(4TWM V2 N70-P73)
N70 The first thing is, very important, diabetes is without cure. So (.) you must have long-term medical consultations. No matter where (.) you work, you must attend. Because your not attending consultations for over two years thus caused you to be admitted last time.
P71 Yeah, yeah, really.
N72 No matter where you are [the patient worked in mainland China], you must attend medical follow-ups.
P73 Yeah, yeah, really.

When the patients had different ideas or were not aware of their poor glycaemic control, the nurses tended to use more of the strategy of "Persuasive communication" together with "Prescribing behaviour change". The patient in the following did not perform regular BGSM, and when the nurse advised him to do so, he had other ideas. The RIAS codes (see Table 10 for the key to abbreviations) are also shown for comparison.

(3HKF V1 P962-P1065)
P962 ((3 sec)) Would there be an alternative way? ([?]L/S-BGSM)
N963 What kind of way? ([?]L/S-BGSM)
P964 When I went to the out patient clinic to do the wound care . . . (G-L/S-BGSM)
N965 Yes? (BC)
P966 I saw some elders (.) elderly people. (G-L/S-BGSM)
N967 Yes? (BC)
P968 They were having their finger pricked [haemstix] there. (G-L/S-BGSM)
N969 Why you need to go over there when you have your own meter [for BGSM]? It is more troublesome. (?L/S-BGSM, C-L/S-BGSM)
P970 Yes, I've got the meter. (Agree)

N971 Why don't you do it yourself? You said your children bought you the meter. ([?]L/S-BGSM, C-L/S-BGSM)
P972 Mmm (Agree)
N973 They are very concerned; why don't you try? (?L/S-BGSM)
P974 I have no idea why. I can't (.) think sometimes. (G-L/S-BGSM)
N975 But you did it in the past. (G-L/S-BGSM)
P976 Yeah, I did. (G-L/S-BGSM)
N977 Yes, so what is the reason, pain or what? (Agree, [?]L/S-BGSM)
P978 One of the reasons is . . . (G-L/S-BGSM)
N979 Yes? (BC)
P980 Perhaps (.) my own feelings; I can't explain myself. (G-psy-f)
N981 Mmm. (BC)
P982 ((3 sec)) That is (.) I am running around during the daytime. (G-L/S-BGSM)
N983 Mmm. (BC)
P984 Eating out mostly. (G-L/S-BGSM)
N985 Mmm. (BC)
P986 Sometimes I eat dinner at my children's home. (G-L/S-BGSM)
N987 Yes. (BC)
. . .
P993 When I was young, I was running around (G-L/S-oth)
N994 Yes. (BC)
P995 Now I am still running around. (G-L/S-oth)
N996 Yes. (BC)
P997 That is, I don't want to be alone by myself at home, so lonely! (G-psy-f)
N998 Eh, (.) In fact we only ask you to do it one day a week. (C-L/S-BGSM)
P999 One day a week. (Check)
N1000 Not everyday! (C-L/S-BGSM)
P1001 Not everyday! (Check)
N1002 No, you can select whatever day you want to do it. Just like you did previously. (C-L/S-BGSM)
P1003 Good. (Agree)
N1004 So, starting from next week, I want you to do it one day a week. (C-L/S-BGSM)
P1005 No matter what I will (.) will do it to report to you. (G-L/S-BGSM)
N1006 Really, don't say that like it is a homework ((laugh)), like you're handing in homework to me. (C-L/S-BGSM)
P1007 Yeah, I need to take care of my health. (G-thera)
N1008 Yeah, look, you understand what I just said? (G-thera)
P1009 Yeah, if you don't push me, I might just slack off. (G-L/S-BGSM)
N1010 Yeah, I see. (Agree)
P1011 Because of my environment and my feelings . . . (G-psy-f)
N1012 I see. (Agree)
P1013 Cause me a lot of changes. (G-psy-f)
N1014 Yeah, I know. You lost your wife and it was only a year ago. (.) That really really would influence your feelings, after all you had been together for the last 40 years. (C-psy-f)
P1015 My children are grown up and gone. (G-psy-f)
N1016 Yeah, they are not by your side. (Check)
. . .
N1024 I think in the old days your parents also had the same feelings when you left them. . . . I think most parents go through such a period of time. I will also face this in the future. But I think you need to look at it from another angle. Look, although your dearest wife is no longer with you, I believe she would wish you well. You might feel bad at times, but you don't need to go there and accompany her. (C-psy-f)
P1025 No. (Agree)

N1026 Not to accompany her so soon. (C-psy-f)
P1027 Mmm (Agree)
N1028 I also hope that you can be happier. Your children love you so much. My view is that your health status needs to be kept up. If your body is not well . . . (C-psy-f, C-med)
P1029 Mmm. (Agree)
N1030 In fact, your wife would have worried about you. Even your children may be concerned about you, but perhaps you cannot sense it. For example, you said a moment ago that they bought you the BGSM meter. This shows that they are concerned about you. (C-psy-f)
P1031 Yes. (Agree)
. . .
N1050 If you don't monitor your blood sugar . . . (C-L/S-BGSM)
P1051 Mmm. (Agree)
N1052 Within only one to two years your health will deteriorate and you will have complications. If you start to monitor it at that moment it will be too late. (G-med)
P1053 Yes, no turning back. (G-thera)
N1054 Yeah, it is very difficult, I dare not say that it is not possible to turn it around. (G-med)
P1055 Mmm. (Agree)
. . .
N1062 So I ask you, if possible, try to prick your fingers one day a week (C-L/S-BGSM)
P1063 Mmm. (Agree)
N1064 Yes, it's really not much. (C-L/S-BGSM)
P1065 Aright. (Agree)

The nurses were vigilant in monitoring the patients' BG control. Although patients might complain of constraints, the nurses typically used factual knowledge, for example, diabetes complications, as an element of the "Persuasive communication" strategy to motivate (change attitudes and beliefs) the patients to invest extra effort in self-monitoring. The nurses did not explore diabetes goal with the patients, or self-management methods that might help. As with the RIAS, the ESAS analysis finds that the nurses did not use any "Partnership" communication behaviour.

Of interest is the patient in the foregoing example did not directly show his disagreement with the nurse, instead he told a story about his daily life that illustrated his psychosocial constraints, which was a common finding in patients who implicitly showed their disagreement, as illuminated by the patient interview data (6.2.2.1).

The ESAS analysis confirms the concern about the RIAS analysis in education encounters (5.3.2.9). Some of the utterances in the example were coded "Counsels – psychosocial-feelings" or "Counsels – lifestyle", but counselling psychologists may take issues with such utterances being classed as counselling. The nurse had good intentions, but she tended to impose what she thought rather than helping the patient to develop his own insight.

5.3.3.4.4 Responses of nurses and patients to prescribing and persuasion

When all of the segments of "Prescribing behaviour change" and "Persuasive communication" were sorted together and examined, it was noticed that the patients were either submissive or defensive (5.3.3.4.3).

The following is an example of a patient responding defensively.

(3CYW V1 N688-P701)
N688 Look, I am not joking, CYW. You are at the most 60 years old. Am I right?
N689 Yeah.
. . .
N698 That's it, still two more years to go to 60. Yeah. There is still a long way to go and suffer. Because lifespans are now usually beyond 80. . . . The most common complications for Asian people are eye and kidney problems. Look, what are the bad consequences for kidney problems? The most immediate effect is to need to change to injection [insulin], . . . and ten years later, the kidney may break down and need dialysis. . . . You want to see your grandchildren grow up. . . . Yeah, that may be troublesome, and the next thing is eye involvement. Do you have problems with your eyesight?
N699 Now, my eyesight ((vo-)) . . .
N700 Occasionally, right?
N701 No, my eyes have had problems all along, not just these years.

The following is an example of a patient responding submissively at the previous visit but not following the prescribed behaviour.

(3HKF V3 P54-P60)
P54 I (.) accordingly I pricked [BGSM] and I recorded [the readings] but I didn't have enough energy, so I always fell asleep.
N55 Yes.
P56 I wanted very much to fill out the record and report it to you.
. . .
N59 Uhh, it appears that you didn't do it for the whole month?
P60 No, only for a period of time.

Of interest is that the nurses were aware of the limitations of prescribing and persuasion, and showed frustration at times. They understood that they might invest great effort in this area, yet it is the patients who implement the prescribed behaviour.

(3HKK V4 N174-N202)
N178 About exercise, this aspect, it doesn't matter how much we talk about it ...
P179 Mmm.
N180 If patients, that's (.) don't do it.
P181 I have exercised
N182 I can only recommend to patients, explain to them.
P183 Mmm.
N184 Having done exercise, what are the advantages? For example . . . In addition, I can't force you to do any exercise, because . . .
P185 I walk, although a bit less.
N186 Yes.
P187 I have leg cramps afterwards.

. . .
N200 Yeah, so that's, in fact, the chance is given to you ((smile)), but if you, that's, you need to consider my point.
P201 Mmm.
N202 We, we, of course, hope very much to help patients. But (.) many times, I talk ((sigh)) I say many things. . . .

5.3.3.4.5 Traditional teaching strategies: Being a teacher

The nurses typically developed the patients' self-management knowledge and skills by means of "Traditional teaching – information giving, demonstration and guided practice". The nurses were good at giving information using analogies to illustrate abstract physiological concepts.

(4TWM V1 N287-P293)
N287 With diabetes, you need to know, firstly, that when you grow older your pancreas will also age.
P288 Yeah.
P289 Thus, you have to have medical consultations regularly. About the use of medication, it will increase over time.
P290 Mmm.
N291 It is like presbyopia. When one was younger, wearing a 100-degree glasses was OK. As one grows older, the presbyopia deepens and the glasses should change.
P292 Correct, correct.
N293 It could become 200 degrees. So, at first, you (.) did not need to take tablets, it doesn't mean you had a low severity of diabetes. . . .

(4TWM V1 N727-P732)
N727 Because, that is about the relationship between our weight and fatty content. If you have a high fat content, it's like a sausage, some sausages have fatty meat, some have lean meat.
P728 Oh, yeah.
N729 For the same weight of a catty of sausages, it is more problematic for those that are full of fatty meat.
P730 Yeah.
N731 So you need to trim down your fatty body part.
P732 Correct, correct.

As is shown, although the information was clearly delivered, the interaction skills in "Traditional teaching" strategies were directive and didactic that elicited minimal verbal responses from the patients. The ESAS findings corroborated the RIAS findings in showing that the patients engaged in many short utterances of agreement (28% of the total utterances).

Of note is that the patients generally valued the nurses as helpful and professional teachers. For example, one patient said towards the end of the visit:

(4TWM V2 N421-P464)
N421 Alright, I'm not going to make an appointment with you. If you have any problems, you can call me.
P422 Good, good, good. Eh, <u>teacher.</u>
N423 Yes?

P424 I would like to ask you about last time [3 months ago] when I was admitted into hospital for examination.
N425 Yes?
P426 They gave me a few pills to lower my blood pressure. . . .
. . .
N435 The tablets with a star printed on them, I would think they were given to you for a test. That was not for your blood pressure, but to see how your adrenaline responded to the drug.
. . .
P464 Yeah, I was muddled. They said I needed to be admitted and I followed [what they said].

It is evident from segments such as these that both the patients and the nurses felt comfortable with the teacher-student relationship.

5.3.3.4.6 Telephone contact to monitor BGSM readings

The interaction data shows that the nurses sometimes asked patients to report the BGSM readings in between appointments (for example, 3CYW V1), although these telephone nurse-patient interactions were not taped. The main purpose of such telephone contact was for the nurses to monitor closely the patients' BG control, to reinforce prescribed lifestyle changes and to alter the dosage of insulin. The patients might take the initiative to report these readings over the phone when they were in doubt, and if this happened then the nurses would discuss these readings and the corresponding changes in self-management tasks and medication in the subsequent visits.

5.3.3.4.7 Time pressure and blood glucose monitoring

The nurses admitted to work under great time pressure in the interaction data, and thus when patients moved on to issues that were not directly related to BG, the nurses sometimes stopped them. This finding again lends support to the notion that the nurses' primary focus was on BG monitoring. One of the nurses vividly explained this to a patient, who, after learning the BG testing function of a newly purchased meter, wanted to learn about its other functions.

(3HKF V2 N349-N355, P1058-P1060)
N349 Right. Don't try these [functions] now
P350 Mmm.
N351 Eh, because we don't have much time left.
P352 Many patients are waiting outside
N353 Yeah, because if we don't finish our talk and the next one has already arrived then you may . . .
P354 Mmm.
N355 Learn much less than you should.
. . .
P1058 Whenever people came to our office, my boss gave everyone [a cup of tea].
N1059 [Yeah, sorry about this], I'd like to cut this short and go directly to the point of this discussion, because of the time constraint.
P1060 Yes, yes, cut it short. . . .

5.3.3.4.8 Case-closed criteria

The criteria for closing a case that the nurse used emerged from the data. The nurses used two main criteria: BGSM readings and psychosocial wellbeing. The nurses typically assessed the patients' progress in knowledge, behaviour and BGSM readings at every visit. When the progress in the former two areas was regarded to be satisfactory, but the BGSM readings were not stabilised within the acceptable range, patients were not discharged from the programme.

For patients who had psychosocial problems, additional to assessing BGSM readings the nurses also assessed the extent to which these problems were resolved before discharging such patients. However, as the nurses did not always take the lead in assessing psychosocial issues and most of the patients did not raise such issues, this criterion applied to those patients who had discussed psychosocial issues. Thus, BG control was the primary discharge criterion.

5.3.3.5 Blocking behaviour of nurses and patients

The nurses were very focused on the topic being discussed. If the patients brought up other issues, the nurses often steered the patients back to the original topic.

(1HKK V1 P383-N388)
P383 Starting from last April whenever I come to see you I need to pay a fee.
N384 Yeah, starting from last April.
P385 Yes.
N386 Alright, don't talk about money, you have a form from the Public Assistance and you can claim the money back ((soft and tender tone)).
P387 I will go [and claim . . .]
N388 [Alright, back] to the topic here. You said you ate some noodles in the afternoon. Do you eat instant noodles?

The nurses sometimes ignored the topics raised by the patients.

(3HKF V3 P5-N21)
P5 I recently had a fair mental state and . . .
N6 Yeah. (.) You did not record the BGSM readings in the book.
P7 I have not finished with the recording (.) but I have kept them with me
. . .
N11 Yes, right then.
P12 It's like this, because I should have moved home. It should have been on 18th of this month.
N13 Yes.
P14 But my children were away from HK.
. . .
N21 Give me a moment, I need to copy the readings from the memory function of the meter.

If the topic that the patients brought up was unresolved, then they might bring it up again later.

(3HKF V1 N1438-P1459)
N1438 Your spot sugar today was really very high.
P1439 I've got a question.

N1440 Yes?
P1441 Nurse ((4 sec)).
P1442 For instance, I sometimes (.) because during the day I eat outside.
N1443 Yes.
P1444 I generally eat a pot of rice in the morning in a tea house.
N1445 Yes.
P1446 Sometimes I eat nothing at lunch time.
N1447 Do you smoke?
P1448 Smoking much less already.
N1449 But you have a strong smoking odour. In fact smoking is bad on you. It causes you ill health.
P1450 Yes, I'm smoking.
N1451 Yes, try your best to cut it down.
P1452 Yes, my grand-children (.) asked me.
N1453 Mmm.
P1454 My grand-children asked ((laugh)) . . .
N1455 Yes, continue.
P1456 They asked why I didn't have my lunch when it was 2 or 3 pm.
N1457 Yes.
P1458 Is this a problem?

Patients sometimes also blocked nurses, and tried to change the topic by telling a story or side tracking to another topic. This happened when the conversation entered an area that caused them to feel uncomfortable or embarrassed. However, the nurses were very focused, and they redirected the conversation back to the topic being discussed. For example, one of the nurses asked a series of detailed questions about dietary pattern, to which the patient responded as follows.

(3CTK V2 P137-P142)
P137 Yeah, cut it across the top, without juice.
N138 Yeah.
P139 It was barbecue pork, I ate about half a bowl of rice, I was eating a bit more recently. I weighed myself a moment ago. I'm 76 kg. I am 1.8 meter high.
N140 Mmm.
P141 So I'm a bit over the standard, but it is not good for me to be too thin.
N142 Mmm, stop, don't sidestep the topic, let's not talk about weight now ((soft and tender tone)). Tell me about your eating first. You eat half a bowl of rice. How much meat and vegetables do you eat?

The nurse-patient dynamics in blocking situations are interesting. When the nurses blocked topics introduced by the patients, the nurses took the lead and the patients submitted. When the patients blocked the nurses again by presenting some psychosocial difficulties, the nurses employed "Facilitating the venting of negative emotion" to help patients talk (5.3.3.6.1), but after a while, the nurses always came back to the selected topic.

5.3.3.6 Some empowering strategies: Being a nurturer

5.3.3.6.1 "Facilitating the venting of negative emotion"

The nurses occasionally adopted empowering strategies (Table 14), of which "Facilitating the venting of negative emotion" was employed the most frequently. The nurses helped the patients release their negative feelings by using active listening skills. In these segments the patients expressed and the nurses listened.

(5SOY V2 N318-387)
P319 So you'd better write it on a sheet and I will hand the sheet to my husband for him to instruct me accordingly.
N320 Eh.
P321 My memory is very poor now, I know.
N322 Really?
P323 This was my fifth stroke. I don't have much memory.
N324 Uhh, really.
P325 Sometimes when I talk with people, I forget what I am talking about. My friends are used to this now and are not bothered by me: "She is like this, we need to appreciate her spirit." ((Laugh)).
N326 Yeah.
P327 I need to be optimistic.
N328 Yeah, you've got five strokes. So how do you feel? (.) Bodily, has there been any influence?
. . .
P339 Tomorrow I need to go [to see the eye doctor]
N340 Uhh, again?
P341 Mmm.
N342 Tomorrow you need to go again.
. . .
N349 Yes, (.) yeah (.) some influence, there is a bit of diabetic influence on your eyes.
P350 My eye was all swollen up that day. That receptionist was so nasty and showed dislike.
N351 Why?
. . .
P364 Yeah, very irresponsible the receptionist and I was very angry. Also that doctor, he said: "I am not a diabetic doctor". I said, "I haven't come for diabetes care. Please check my eyes" . . . Once he had checked, he said you needed to go quickly to eh, eh . . .
N365 The eye specialist?
. . .
N384 Mmm, yeah, after these, you got a quick eye specialist appointment. It's something good, at least. Yeah.
P385 Yeah, now it seems alright. That doctor was seeing me regularly.
N386 Yeah, then you need to pay attention. Controlling BG is very important [to your eye prognosis].
P387 Yeah, thank you, Nurse 5.

5.3.3.6.2 Active listening and empowering strategies

Although some empowering strategies were used only occasionally, they were powerful in activating the patients. The following is an example of a "Counselling – self-management knowledge development" strategy.

(5SOY V1 N57-P123)
N57 So you said, . . . a while ago, you had poor control. Is that so?
P58 Mmm.
N59 Do you really think so?
P60 Yes

N61 How did you come to this conclusion? How? What caused you to think it is poor? Could you tell me?
P62 That's, this is 13 [mmol/L], this is a poor reading.
N63 Yeah, yeah, this was after breakfast.
P64 Yes, I ate only half a bowl of rice.
N65 How long did you wait? How long after breakfast [for the BGSM]?
P66 I waited almost two hours. It was still 13 so it was poor.
N67 Yes, 13, yeah.
P68 This one was . . .
N69 Before lunch?
P70 Before lunch was 11 and it was also poor.
N71 Mmm.
. . .
P78 That is as a whole they are not ideal.
N79 OK, look, you think that they are not ideal. Have you considered, for example, if on the day you got 13, you said you ate half a bowl of rice. Do you always eat rice as breakfast?
P80 No.
N81 What do you usually eat?
P82 Usually, for breakfast I go to a tea house with friends for morning tea.
N83 Morning tea.
. . .
N90 After morning tea, have you ever tried BGSM? Which ones [readings] were after morning tea?
. . .
N96 Alright, (.) the one of 13 was after eating rice, is that right?
P97 Yes, yes.
. . .
N104 After morning tea this one was 10.4.
. . .
N114 Is that so? Then do you think that, would it be, because these were after morning tea, that they would be related to eating a bit more of what? Pork and hairy melon? Is this one about morning tea?
. . .
P118 Fish belly
. . .
P121 It appears to be related to the fish belly. It has a lot of oil in it ((Vo+)).

The patients were appreciative of being listened to, as is evidenced by their tones of relief (see, for example 1CSL, 5KSM and 5MCF). The patients often say "thank you" (5SOY V2 P387) in the interaction process.

The ESAS analysis again confirms the concern about the limitations of the RIAS analysis. Active listening, a counselling skill that is integrated in the empowering strategies, was coded in the RIAS analysis mainly as "Agree", "Back channel" or "Check".

5.3.3.7 Contributions of the patients

The overall pattern of the patients' contribution is that they played a passive role in the nurse-patient interaction process. Throughout the education process, the patients engaged in listening and responded to the assessments. Occasionally, the patients might raise a topic of importance to them for discussion or might move to a topic with which they felt comfortable (5.3.3.5). Although the patients raised only a few topics, they were usually psychosocial in nature (5.3.3.5), such as stating difficulties with adopting the prescribed behaviour. In these instances, the nurses used "Facilitating the venting of negative emotion" to help the patients talk about their difficulties (5.3.3.6.1).

An obvious finding is that patients typically had a choice of dates for the education follow-up appointments, but they had no choice about the frequency and length of these appointments. The nurses adopted the "Negotiating sustainable behaviour" strategy to ensure the return of patients. Although the education appointments were prescribed, the nurses actively invited the opinion and participation of patients in setting up the appointment. The patients' tones usually demonstrated their appreciation.

(5MCF V3 N682-P709)

N702 So, your next medical follow-up is in the morning of 4th Sep. You come up here at 12:30 pm to see me, alright ((a suggestive tone))? It saves you from making one more journey [to the hospital].

P703 Fine.

N704 Is that OK? If the medical follow-up goes beyond 12:30 pm, because there might be many patients in that week due to a public holiday, and if you finish [the medical follow up] after 1 pm, it's better for you to go to the canteen for lunch. You could come to me after 2 pm, is that OK?

P705 What do you mean? Should I come here first at 12:30 pm and check with you?

N706 The appointment should be at 12:30 pm, but if you cannot make it . . .

P707 Yup.

N708 . . . because Dr C may still be seeing other patients, and [there may be] a long queue, you don't need to rush up here, you could come to me at 2 pm.

P709 That's great. Thanks.

5.3.3.8 Nurse-patient relationship: Tension and relief

Two pairs of roles between the nurses and patients emerge from the ESAS analysis. One pair is the nurse as policewoman and the patient as suspected criminal. Within the role of a policewoman, the nurses played two functions: that of detective (5.3.3.3) and that of BG monitor (5.3.3.4). As evidenced in the data, the nurses actively assessed the patients to detect what caused their poor glycaemic control. After detecting the possible contributing factors, the nurses were vigilant in monitoring the patients' BG and self-management behaviour by means of feedback, prescribing and persuasion. The patients might become subtly defensive, change topics (5.3.3.5) or simply reacted passively (5.3.3.4.3) in response to this, and it is evident from the data that there was a tension in the nurse-patient relationship.

Another pair of roles is that of the nurse as nurturer and the patient as nurturee. Within the role of nurturer, nurses played two functions: that of teacher and that of emotional supporter. As teachers, the nurses actively taught knowledge and skills to help patients tighten their glycaemic control and provided informational support (5.3.3.4.5). The patients reacted as obedient and respectful students, and gave many short agreements (5.3.2.7). As emotional supporters, the nurses, upon detecting the patients' emotional problems, actively provided emotional support, including facilitating the expression of negative feelings, mobilising social support (5.3.3.6) and making themselves available to patients by means of telephone contact (5.3.3.4.6). The nurses typically set up the next appointment at the patients' convenience (5.3.3.7). It is evident from the data that both parties were comfortable within these role pairs, which reveals relief in the nurse-patient relationship.

5.3.3.9 Conclusion

The ESAS analysis corroborates the RIAS analysis and adds richness to it. The findings support the notion that the preventive model of diabetes education is the model used in practice. These findings are discussed in Chapter 7.

5.4 Patient outcomes: Second sub-unit of analysis

5.4.1 Gain in perceived adequacy of knowledge

Three outcome measures were adopted according to the three templates derived from the theoretical framework. They include perceived adequacy of diabetes knowledge, C-DES and HbA1c levels, the data for which were obtained from the pre- and post-education programme questionnaires (Appendix 10) and the patient records. Table 17 displays these pre- and post-education programme values by patient and also the C-HCCQ by patient, which is reported in Section 6.2.1.

An item was developed to measure perceived adequacy of diabetes knowledge for self-management (see 4.5.3.3.1). The mean perceived adequacy of diabetes knowledge for pre- and post-education programme was 5.1 (SD = 2.4) and 6.8 (SD = 1.7), respectively.

Given the small sample size, it is imperative to determine whether the pre-post differences in knowledge scores are normally distributed. A Kolmogorov-Smirnov test of normality was conducted and the result ($P = 0.002$) demonstrates that the differences are not normally distributed, with three patients' showing very large gains (1CSL, 3HKF, and 5SOY) and one patient (3CTK) showing a decrease. The pre-post comparison using the non-parametric Wilcoxon Signed Ranks test demonstrates a statistically significant increase in the perceived adequacy of diabetes knowledge in the post-education assessment ($P = 0.004$). In short, this sample of patients displayed a greater perceived adequacy of diabetes knowledge in the post-education assessment.

Table 17

Patient outcome findings, drug adjustment and the C-HCCQ

Code	Pre K[1]	Post K[2]	Pre C-DES[3]	Post C-DES[4]	Pre HbA1c[5]	Post HbA1c[6]	Drug Adjustment*		C-HCCQ[7]
							Insulin	OHA	
5CHK	8	8	3.65	3.90	8.6	8.2	/	/	5.8
5CKF	5	6	3.70	3.85	8.3	7.2	/	/	6.0
5FYS	8	8	3.00	3.45	10.9	6.2	/	D	5.8
5HYL	5	8	3.40	3.75	8.5	8.0	U	/	6.0
5KSM	4	6	3.30	3.85	9.0	7.4	U	/	6.4
5MCF	9	9	4.75	4.00	8.7	8.2	U	/	7.0
5NKL	8	8	3.95	3.70	10.2	9.0	U	/	6.0
5SOY	1	9	4.05	3.40	7.9	8.5	/	U	6.0
5WSN	3	4	3.75	3.80	11.8	8.2	D	/	6.0
5YSY	7	7	3.20	4.00	10.2	12.3	U	/	6.2
4CKC-J	7	8	4.20	4.00	10.7	8.4	S	U	5.6
4CSY	2	6	3.65	3.35	10.8	8.9	/	U	6.0
4CYW	5	7	2.95	3.70	7.6	8.2	U	/	5.8
4TWM	5	7	3.55	3.20	10.2	6.5	/	/	5.6
3CYW	5	5	3.90	3.90	7.5	6.1	/	/	6.2
3CTK	6	4	4.05	4.00	8.3	9.1	/	/	6.4
3HKF	1	6	3.15	3.15	8.0	6.0	/	U	6.2
1CSL	3	9	3.65	3.95	9.3	9.4	U	/	6.0
1HKK	7	9	3.85	3.05	7.5	6.8	/	/	6.2
1MSC	3	5	3.15	3.00	7.8	6.8	/	/	6.0

[1] Pre K = Perceived adequacy of diabetes knowledge before the start of the programme.

[2] Post K = Perceived adequacy of diabetes knowledge six months after the start of the programme.

[3] Pre C-DES = Scores from the C-DES before the start of the education programme.

[4] Post C-DES = Scores from the C-DES six months after the start of the programme.

[5] Pre HbA1c = HbA1c level before the start of the education programme.

[6] Post HbA1c = HbA1c level six months after the start of the programme.

[7] C-HCCQ = Scores from the C-HCCQ six months after the start of the programme.

*D and U = A downward and upward adjustment, respectively, of either insulin or OHAs during the programme, respectively. S = Starting

Table 18

Correlation matrix of the pre-post differences in the C-DES, perceived adequacy of diabetes knowledge, HbA1c levels, and the C-HCCQ

	1	2	3
1. C-DES	1		
2. Knowledge	0.67		
	p = 0.78		
3. HbA1c	0.20	-0.45	
	p = 0.40	p = 0.05	
4. C-HCCQ	-0.09	-0.29	-0.32
	p = 0.71	p = 0.21	p = 0.16

5.4.2 No change in diabetes-specific psychosocial self-efficacy

The 20-item C-DES was adopted in the pre- and post-questionnaires to measure diabetes-specific psychosocial self-efficacy (see 4.5.3.3.1). The internal consistency of the C-DES as determined by Cronbach's alpha is 0.87. In the pre- and post-education assessments, the 20 patients obtained a mean C-DES score of 3.6 (SD = 0.5) and 3.7 (SD = 0.4), respectively. A Kolmogorov-Smirnov test of normality was conducted and the result demonstrates normality ($P = 0.200$). The pre-post comparison using a paired t test demonstrates no statistical significant difference ($P = 0.942$).

5.4.3 Improved HbA1c levels

In the pre- and post-education assessments, the 20 patients obtained a mean HbA1c reading of 9.1% (SD = 1.3) and 8.0 (SD = 1.5), respectively. A Kolmogorov-Smirnov test of normality was conducted, and the result ($P = 0.200$) demonstrates that the differences are normally distributed. The pre-post comparison using a paired t test demonstrates a statistically significant decrease in HbA1c levels in the post-education assessment ($P = 0.007$). Of interest is that four patients had a higher HbA1c levels in the post- than in the pre-assessment (5YSY, 5SOY, 4CYW, and 3CTK), and one patient showed a great decease (5FYS).

5.4.4 Associations between outcomes

An analysis of the association between the pre-post differences in outcomes was conducted using Spearman's Rho, as the difference in knowledge levels is not normally distributed. Table 18 displays the findings. The correlation between the C-HCCQ and other outcome measures is reported in the next chapter, and the results show that the increase in perceived adequacy of diabetes knowledge correlates with improved HbA1c levels, ($P = 0.048$).

5.4.5 Conclusion

To conclude, the pattern is that six months after enrolling to the programme, the patients perceived an increase in the adequacy of their knowledge for diabetes self-management, had improved HbA1c readings and did not perceive much change in their diabetes-specific psychosocial self-efficacy.

This pattern of achieved outcomes corroborates the findings of the ESAS analysis (5.3.3) that the preventive model of diabetes education was in operation. The association between knowledge and HbA1c levels indicates that, statistically, the greater the gain in the perceived adequacy of knowledge for diabetes self-management, the better the HbA1c levels, and vice versa. The patients' perceptions of the outcomes achieved are explored in patient interview data.

5.5 Summary

In this chapter, the answers to the first and second research objectives are reported through two sub-units of analysis: nurse-patient interaction and patient outcomes. The RIAS analysis shows that the nurses dominated the interaction process and the patients engaged in more agreement communication behaviour. The ESAS analysis demonstrates that the nurses adopted mainly education strategies from the preventive model. The pattern of achieved patient outcomes indicates that the preventive model was in operation, which corroborates the RIAS and ESAS analyses. The next chapter presents the findings from the third and fourth sub-units of analysis.

Chapter Six - Findings: Perceptions of Patients and Nurses

5.1 Introduction

This chapter and the former chapter present the study findings. This chapter starts with the findings of the third and fourth sub-unit of analysis, and ends by merging all of the data across the four sub-units to give an empirically based pattern of the education process. Section 6.2 presents the quantitative and qualitative findings on the patients' perceptions of the education process. The findings from these two data-sets are then merged to provide answers to the third research objective. Section 6.3 presents the findings on the nurses' perceptions and experience of the education process and nurse documentation to provide answers to the fourth research objective. Section 6.4 integrates the findings from the four sub-units following the propositions derived from the theoretical framework for this study to substantiate an empirical pattern of practice. This empirical pattern is then compared with the three templates derived from the theoretical framework using pattern matching logic in an attempt to meet the research aim of the evaluation of the education process for diabetes self-management in a nurse-led education centre in HK.

6.2 Patient perceptions: Third sub-unit of analysis

6.2.1 Perceived autonomy support: C-HCCQ ratings

The five-item C-HCCQ (Appendix 10) that measured the perception amongst the patients of support for their autonomy by the nurses was administered six months after the patients enrolled in the education programme (see 4.5.3.3.1). The Cronbach's alpha of the scale in this study is 0.65.

The patients had a mean score of 6.1 (SD = 0.3, ranging from 5.8 to 7), which indicates strong agreement that the nurses supported their autonomy. Table 17 (Chapter 5) displays the C-HCCQ scores by each patient. Table 18 (Chapter 5) shows that there is no correlation between the C-HCCQ and the three measured patient outcomes (6.2.2). Given the findings from the RIAS and ESAS analyses, it would be interesting to find out the basis of the high ratings of the patients, and this was explored in the patient interviews.

6.2.2 Patient interview data

6.2.2.1 High perceived support for autonomy

The patients were asked to describe what caused them to give a high rating in the C-HCCQ. The interview data give valuable insights, and show that there are three factors that combine to cause the patients to believe that the nurses supported their autonomy.

6.2.2.1.1 Low expectations and treatment

Firstly, the patients perceived that there was little leeway for choices in diabetes self-management.

> "She [the named nurse] asked us to select when to go back to see her. So I chose, she was very democratic with the follow-up appointments. When the lady [the RA] asked me [about patient autonomy], I didn't understand what she asked. The nurse was an expert, how could I make a choice in the area of treatment? Not possible! I could only choose when I was to come back for the appointment. This is the room I have for making a choice. What kind of right! She is an expert. That might be why I answered like that. . . . For the questionnaire, you didn't know what kind of choice it [the question] was about. Now that you explained it I understand a bit." (3CTK, P1058-P1090)

> "No choice, for diabetes self-management . . . no choice, basically the direction is like this, there is no special choice about treatment, that's eating and so on, for the sake of getting well . . . Personally, I don't think there is any choice." (4CKC-J, P386-P392)

The education process was perceived as part of the medical care.

> "Why am I so definite that she [the nurse] was good? . . . [Because] when she inspected me . . . she even checked my feet to see how they were. She was very thorough . . . If she wanted to tell me off, if needed, then [she could] tell me off . . . I submitted to her . . . Patients who are asking for medical care, this is what they want . . . With instructions from doctors and nurses, patients will become better . . . Therefore, I submitted to the nurse . . . She was wholeheartedly about helping me." (3HKF, P12- P28, P608)

Of note is that the patients' education levels did not have an influence on the perception of the education process as part of the treatment.

6.2.2.1.2 Chinese culture and "a parent's heart"

Secondly, the patients expected caring nurses, and were appreciative of the consideration that the nurses had of the constraints that the patients faced.

> "Patients need tender loving care . . . Patients are always agitated with the disease . . . We need tender loving care. Even an elderly man upon lying on a [hospital] bed will become a small boy . . . She [the nurse] is good, that is, she reassures us. You can talk to her . . . You [nurses] need to firstly reassure their [the patients'] hearts." (1CSL, P794, 1076-1082)

> "She was friendly . . . She was one of those who practise with a parent's heart . . . She wanted patients to be well . . . Nurses work under the constraint of time and a great patient load, yet she gave you an explanation and hoped you became well." (5CKF, P816-P832, P1060-1062)

The nurses were described as offering their help to patients in need. For example, a patient (4TWM) described an experience in which he was an hour late for an appointment because he was detained by his work. Despite being late, the nurse showed great consideration by working overtime for him. Another patient (4CSY) described an occasion when she was desperate and walked in without booking an appointment to ask for help. The nurse put aside the paper-work and gave the patient repeated "guided practice" on assembling a needle onto an insulin pen, until she had finally mastered the skills.

The patients typically had a voice in selecting the dates for the next education appointment. The patients described this as solving great problems in their work (for example, 4CSY) or family (for example, 5MCF) schedules. Experiences such as these contributed to the perception amongst the patients of nurses having a great understanding of the constraints of patients and great consideration by arranging matters for the convenience of patients.

The nurses sometimes told the patients off if they did not comply with the prescribed behaviour, and although the patients might be uncomfortable with this, they found being told off acceptable because of the caring attitude of the nurses. Many of the patients referred to the Chinese proverb that "healers have a parent's heart", with four patients (3CTK, 3HKF, 5CKF, 5NKL) directly quoting it.

> "I listen to the nurse. She may give you a lesson. Nurses are like "Buddha's mouth, grandmother's heart"; they teach you and want your health to become better . . . treat you as their children, teaching you . . . They love you so much that they scold you if you are wrong. I understand their psychology. If you can't do what they want, they treat you as if you were their son, so they scold you and teach you again . . . However, I am already past middle age, I have an education, I feel ashamed . . . Sometimes I feel very guilty, and I think of the diabetes complications . . . So you need to love your life. You need to shape up in your behaviour. If you slack off and don't care for your life, then you have nothing to say." (3CTK P270-P406)

6.2.2.1.3 Chinese culture and relationships

Some of the patients choose to show respect to nurses by giving them high ratings.

> "These [ratings] might not be true. They [other patients] most likely didn't want to make the nurses feel embarrassed. Give them "face" . . . This is about getting along well with people, having a good relationship. It is good for both parties. If you give nurses "face" and respect them, then there will be mutual respect . . . Also, I found that Nurse 1 was a good nurse, although she didn't understand my personality." (1HKK, P632-P652)

6.2.2.2 The link between achieved outcomes and process characteristics

6.2.2.2.1 Knowledge input and self-management

In relation to gaining adequate knowledge for self-management, the patients typically attributed any gain to the teaching of the nurses.

> "The nurse . . . helped you. You have no knowledge about it [self-management]. She is a professional. Some of the things even doctors may not know, but she does. She is a specialist in diabetes education . . . She points you in the right direction." (3CTK, P1036-P1038)

> "She developed my (.) knowledge that I could use to fight diabetes. Eh, that is, how to make sure the blood sugar is not too high, not to have complications . . . of great help. If I didn't have the knowledge from her, I would have had many diabetes complications." (1HKK, P270-P276, P310-P314)

However, factual knowledge and skills alone were typically perceived as being inadequate to meet the daily demands of self-management. The patients expressed their difficulties and frustration within a total life context, of which self-management is only a part.

> "In short, after having diabetes, your life becomes very rigid. Very similar to a life written on the blackboard, you are to follow the things [prescribed behaviour] on the blackboard." (1CSL, P498)
>
> "I understand the difficulties so well. Saying it's [self-management] easy, it seems as if you were the first person in the whole world . . . Cooking . . . family issues . . . minor ailments . . . wound care . . . being labelled as a diabetic . . . become invisible [sources of] tension." (5MCF, P388-P402)
>
> "I attended [the education centre] three or four times. It's mostly about how to eat [according to] the pyramid of eating, how to inject, I learned many times. I am very compliant with the taught topics, but why am I [BG readings] still high? I have been asking myself. Sometimes because of entertaining activities . . . But, I don't want others to know about my diabetes. So on certain occasions . . . some fatty food items, you say [to yourself], "don't worry, I will eat only a bit". And then it becomes a bad habit. So it becomes worse bit by bit." (3CTK, P486-P514)

The factual knowledge input alone was perceived to be inadequate for developing essential abilities for self-management, which might lead to the need for repeated reinforcement education.

> "Perseverance is very important . . . Doctors and nurses teach . . . give you a message: it's not about death, it's about not dying so soon. A patient "M", he misunderstood and said "I take drugs but why does diabetes mean I have to stay away from food?" He didn't refrain [from eating] and now he needs to bring his son with him on every visit, because he's turned blind . . . According to my perceptions, it's better to summon patients back every year to tell them [about diabetes complications] ((laugh))." (3CTK, P594-P620)

6.2.2.2.2 Feedback and communication skills

Although the patients perceived that the named nurses' teaching helped increase the adequacy of their self-management knowledge, they found the most helpful element to be feedback on the appropriateness and adequacy of their self-management. The feedback was regarded as helpful for gauging the level of control that they had over diabetes.

> "She did help my determination to control. Every visit, she analysed your blood sugar readings for you . . . and the disease progress for us so we could understand it ourselves." (1CSL, P942, P614)

A patient described the nurse's feedback as relieving her feelings of guilt and re-establishing her sense of control when she was hospitalised because of a stroke.

> "No, it [my expectation] couldn't be achieved. Because, it was mainly, the nurse told me, due to my bodily reaction. I don't blame myself, because I completely refrained from those food items and exercise accordingly . . . but the blood sugar kept on rising. I did all I could do . . . I asked myself and I didn't find any missing [self-management tasks] . . . And at the recent admission, they checked me and found I did what they said . . . I think that even if I can't keep my blood sugar stabilised, I must constantly observe my body . . . No matter what I become, that is, [whether] the blood sugar behaves or not, I have done the best, I ought to have no regrets for my life." (5SOY, P34-P144)

The patients typically perceived positive feedback to be a relief, because it confirmed past effort and energised future endeavour.

> "I saw the doctor and he told me my blood sugar was too high. So I thought the nurse would teach me this and that. But ((smile)) she asked me about my daily life . . . and then she said: "I give you 100 marks" ((laugh, very joyful tone))." (1HKK, P124-P128)

> "I want to maintain my physical health . . . We [the patient and his wife] listened to the nurse to see whether we could be better . . . when I went back for the check, the nurse said: "Your [HbA1c] degree is better and BGSM readings are better . . . quite well maintained". I was much relieved." (4TWM, I307-P334)

The patients typically perceived negative feedback to be depressing. Living with a chronic illness can be "very moody and boring" (4CSY), and they expressed that additional negative feedback caused frustration.

> "Some doctors didn't think so, they were very noisy about me . . . I have had diabetes for 19 years. They said you would have been cured if you'd behaved. How much I wanted to be cured. I have a chronic illness; I don't like drugs . . . They use an ideal standard to measure me . . . I said [to myself] "ten fingers are different lengths" [a Chinese saying about individual differences] . . . To be honest, if I had been over 10 [BGSM reading], you could tell me off, but I was 8 . . . The nurse asked: "How many bowls [of rice] you eat in a meal? I've told you not to eat too much already." . . . This caused me negative feelings." (5CKF, P256-P274, P920-930)

The communication skills in giving feedback were perceived to be important

> "Of course the feeling is no good if someone keeps checking on you . . . There should be an introductory talk . . . That's to reassure your heart first. So the patients will think: "Yes, I can tell the truth". You can be honest but you need to care for the patient's feelings. Don't start by saying "what did you eat, your blood sugar has elevated again, what did you do?" (1CSL, P764-P794)

6.2.2.2.3 Time pressure and the personal touch

The patients perceived that specific feedback about the disease progress was helpful, with some suggesting monthly appointments (for example, 4TWM). Indeed, the patients perceived the need for a good understanding of the "patients' personality" (for example, 1HKK) and "other demands in life" (for example, 4CKC-J) to make the feedback specific. Yet the patients also typically perceived the time pressure, frequent telephone interruptions and patients queuing up outside as hindrances to spending quality time with the nurse.

> "Nurses in HK have to follow too many patients . . . she [his named nurse] might not recognise my face. My idea of good follow up for patients is for nurses to have a good understanding of the patients' personality. But the nurses have no way to deal with the large patient load. Thus, to care for patients [within this constraint] I think they have to take care only of the important things, and what they can do is give a message to a patient: . . . Your body, if you cannot maintain [diabetes self-management] . . . will definitely deteriorate and there is no method to reverse it." (4TWM, P712-P724)

> "Sometimes I found her [the nurse] working very agitatedly . . . we both were . . . when you look at her work [pattern], she talks to you for a short while then someone asks her something. It is not that she is hard on you, she is overworked . . . I dare not criticise her; it would not be fair on her, she didn't throw any temper tantrum . . . Very often, you thought after waiting for an hour it would be your turn but it ended up being two hours. You dared not go and ask because she was called to go somewhere to work . . . sometimes there was new information on the computer or a phone call she needed to attend to . . . she couldn't concentrate on you." (5CKF, P962-P1000)

6.2.2.2.4 Input on psychosocial self-efficacy

In relation to the insignificant changes in the C-DES, the patients perceived minimal direct facilitation of diabetes-specific psychosocial self-efficacy. This finding corroborates the ESAS analysis (5.3.3), which reveals a limited use of empowering strategies amongst the nurses. The patients typically perceived that it was their responsibility to adjust to the prescribed behaviour themselves, with one patient saying: "Once the nurse gives you instructions, you yourself need to follow what to do and adjust to it". (3HKF, P1028)

The patients were able to identify from their experience the essential abilities for self-management, such as acceptance, aspiration, determination, endurance, financial security, managing negative feelings, obtaining support, perseverance, self-motivation, and self-regulation. An illiterate patient with type 2 diabetes, 5CKF, who had successfully lowered her HbA1c level from 8.3 to 7.2%, provides an example. Her description illustrated the abilities required for self-management.

> "I don't know [what you mean by ability]. But the tension is great; you need to be careful and cope with it . . . The tension is about forbidding yourself to eat . . . But the only thing is I'm fearful, seeing those people sitting on wheelchairs [amputation due to diabetes foot]. . . . This sight reminds me that I need to endure it [the craving for certain foods] . . . After all, it is your ability to endure . . . My children also remind me: "what are you eating? Mum, remember not to eat those things". I say: "yes" . . . I remember their concerns; I give myself pressure . . . I myself need to endure and endure . . . The nurse is very concerned . . . She said: "you can divide a banana into two halves, so you don't need to endure so much". . . That is a big help . . . about the portion that's suitable for me . . . Mmm but [for endurance], I rely completely on my own . . . You have to accept it [diabetes], if "a dish is cooked then you have to swallow it" [a Chinese saying about accepting things as they are] . . . It's a chronic illness and you need to take drugs year on year. I give myself a break from it [self-management]. I gave myself three days off, I didn't need the doctor's approval . . . first three days of Chinese New Year . . . I ate the festival food. I didn't take drugs . . . My wish is to be between 6 and 7 [BGSM readings], not to be told off by the doctors and have the food I like . . . They always ask me not to eat rice. I was shaky on my feet [without rice]. I couldn't walk up the stairs. I didn't dare say no to the doctors, but I didn't follow [their advice] . . . If you don't exercise, it's of no use what you refrain [from eating]. No matter if it's typhoon or raining . . . I walk at least three hours a day to a hill top . . . I live on the 40th floor and I walk up and down the stairs to the podium on the 3rd floor twice a day." (5CKF, P340-P590, P644-P702)

A close examination of these abilities shows that they are diabetes-specific psychosocial skills (Anderson et al 1995) and self-regulatory skills (Tones and Tilford 2001). However, these abilities were not directly learned from the diabetes education programme.

> "It is the ability to self-regulate . . . You could call it learning through observation . . . Why? This is learned from my situation . . . First, my father was a diabetic patient; second, my elder brother had an operation, angioplasty. My mother died of diabetes during a cardiac catheterisation. So, whenever, I think of them, I borrow them as a mirror to alert myself and to control [myself]." (1CSL, P600-609)

Moreover, the patients typically found these abilities difficult to master.

> "Myself. The least helpful is myself. . . my [lack of] aspiration and determination to follow their instructions." (3CTK P1136-P1144)

6.2.2.2.5 Self-management as part of a total life context

Although statistically the patients' HbA1c levels improved and that the improvement was associated with the patients' perceived adequacy of self-management knowledge (Table 18), an in-depth exploration shows that although the teaching and feedback of the nurses were perceived to be important, the patients described achieving self-management demands within a total life context. What emerges from the data is the complexity between knowledge, glycaemic control and environment.

A still richer picture emerges from exploring the perceptions of seven patients, who had a high or low gain in the outcomes (see 5.4). 1CSL, who was a 44-year-old unemployed man, found that he could integrate the demands of self-management into his daily life, which was reflected by his BGSM readings. He learned this successful integration from N 1's teaching and feedback and because of his own determination to stay well for the sake of his family. He gave himself a high score of 9 for knowledge adequacy in the post-rating, which was an increase of 6 points from his pre-rating.

3CTK's rating of his knowledge adequacy fell from 6 to 4 after the programme. 3CTK, a 65-year-old man with a high social status who frequently attended business banquets, said that he could not manage to keep up with a prudent diet despite adequate knowledge and N 3's advice. Although his BGSM readings improved for a while after seeing the nurse, the social activities during Chinese New Year caused a great barrier to his meal plans. This resulted in an increase in his HbA1c level from 8.3 to 9.1%. The difficulties in integrating prescribed behaviour into daily activities caused him to rate perceived level of knowledge adequacy to be lower in the post-rating.

3HKF, a 64-year-old man, rated himself as having little knowledge of self-management before enrolling in the programme. He showed frustration during the patient interview, because despite learning the skills he could not perform regular BGSM as prescribed by N 3. Although his pre-post HbA1c levels were 8 and 6%, respectively, he did not notice the improvement. He said that he could not understand his inability to prick his finger for BGSM, which contributed to his post-rating of 6. Although this was an increase of 5 points from his initial rating of 1, the patient felt that he had a long way to go before achieving an adequate knowledge.

5SOY, a 48-year-old home maker, had rated herself 1 and felt to have little self-management knowledge before the programme, because her BGSM readings fluctuated greatly. She learned from N 5 methods of glycaemic control by means of lifestyle changes, and practised them diligently. However, her BGSM readings still fluctuated, and were always on the high side. 5SOY's pre-post HbA1c levels were 7.9 and 8.5%, respectively. Subsequently, N 5 and the doctors explained to her that the fluctuation was more related to her "bodily reaction" rather than her self-management. She was admitted to hospital because of a minor stroke before the end of the interaction data collection period. 5SOY decided to live life "one day at a time" and adopted the self-management demands as advised by N 5. She rated herself 9 at the end of sixth month, an increase of 8 points in knowledge adequacy.

4CYW, a 51-year-old woman who had retired early, attended both a private doctor and doctors of the hospital concerned. 4CYW's pre-post HbA1c levels were 7.6 and 8.2%, respectively. She described that her blood sugar fluctuated so much that her heart kept "jumping as the meter jumps". She worried and tried to adhere to N 4's advice. Within four months after the second visit, 4CYW had seven episodes of phone contacts with N 4. According to the nursing documentation, the phone contacts were about BGSM readings and advice on self-management. Although 4CYW learned and practised healthy eating and exercise patterns, she could not manage to keep her BGSM readings within the prescribed range. She was frustrated. Because implementing the acquired knowledge did not bring an improvement in the BGSM readings, the patient rated her pre-post adequacy of knowledge for self-management as 5 and 7, respectively.

5FYS, a 68-year-old woman, achieved a great decrease in pre-post HbA1c levels from 10.9 to 6.2%. 5FYS said that she was determined to keep her blood sugar low because she took it to be her responsibility. She did not want to bother her children with poor glycaemic control. She successfully kept to a low calorie diet, which she attributed to her determination. Her pre-post rating of adequacy of the self-management knowledge was the same, 8.

5YSY, a 28-year-old woman, was in fulltime employment and had a brother who suffered from diabetes complications and had a lower limb amputated. Her pre-post HbA1c levels were 10.2 and 12.3%, respectively. She described her family responsibilities, heavy work demands and poor colleague relationship as resulting in high stress levels during the six-month data collection period. 5YSY did not attribute the increase in HbA1c levels to inadequate knowledge for self-management, but to her external environment. This experience contributed to her pre-post rating of knowledge adequacy of 7.

An examination of the perceptions of the patients of the aspects of life that influenced glycaemic control identified two main categories: internal and external environment. Internal environment includes internal resources: adequate diabetes self-management knowledge, essential abilities to integrate the appropriate behaviour into total life context (see 6.2.2.2.4), considering self-management to be a process rather than an ideal standard and disease progression. The external environment includes social and economic situations.

6.2.2.2.6 Perceived relationships and prescribed behaviour

Emerging from the data on the patients' perceptions is a link between the adoption of prescribed behaviour and the perceived relationship with the named nurses. The ESAS analysis (5.3.3.8) discovered both relief and tension in nurse-patient relationship. The patient interview data throws further light on this tension, and shows that the patients perceived self-management to be only one of the total life issues, whereas the nurses behaved in the interaction (5.3.3) as if this should be the sole interest of the patients.

Despite this, the patients expressed their intention to follow the prescribed behaviour, not only in the interaction, but also in the patient interviews. As reported in Section 6.2.2.1.2, the patients regarded the nurses either as experts or as health professionals with "a parent's heart". A close examination of the data shows that this perception is related to a respectful relationship. The patients perceived that the nurses were working for the benefit and wellness of patients and deserved respect. Some of the patients perceived adopting the prescribed behaviour as an act to show reciprocal respect to the nurses.

> "She gave me a very detailed explanation, all the things were very detailed . . . She sometimes gave me a piece of candy. She said: "put this in your pocket. You may faint in the street and this is of use. If you don't faint, then don't take it". She took good care of everything . . . She was caring . . . She always said if I had a query I should call her. I thought she was so busy, without any special things I never called her . . . if she (.) were a doctor, her patients would recover quicker. ((Laughters)) . . . I can follow [the prescribed behaviour] up to 70 to 80 percent ((smile)) . . . We should respect nurses . . . if she tells you to do something, then you follow; that is respect. If you don't respect her ((smile)), that is, if she asks you not to eat but you eat a bit . . . It is difficult to follow fully. Very difficult, to follow it 70 to 80 percent is very good . . . Sometimes you are hungry and eat a few more grains of rice." (1MSC, P134-P228)

> "The nurses treat you like a family member . . . Why I said we need to respect them, [is that] they in fact are experts. You respect them and listen to them, comply with what they say because they are experts." (3CTK, P760-P820)

The patients respected the on-going concern of the nurses and chose to adopt the prescribed behaviour.

> "When I was a teenager [15 years ago], I said to myself: "don't bother me", I skipped appointments . . . When I started working [10 years ago] I thought . . . "she [the nurse] is a stranger to you, why should she be so concerned and call you to remind you about follow ups and drugs? . . . Why is she so persistent? She has no obligation to do so" . . . She once invited me to go to an exercise programme with her. It's you who is fat if you don't shape up . . . It's none of her business if you don't follow . . . I listen to her suggestions; I collect suggestions. I analyse them and choose to follow those that are suitable for me . . . I went [to the exercise programme]." (5YSY, P18-P110)

6.2.2.3 Patients talking less: Contributing factors

Four contributing factors emerged from the patient interviews, including confidence in speaking about a medical topic, the patient's personality, the nurse's communication style and perceived time pressure. As has been reported, the patients perceived the education process to be part of the treatment (6.2.2.1.1). As lay people, they might keep quiet and wait for the nurse to take the lead. This occurred even amongst the highly education patients. For example, a patient with post graduated degrees said:

> "I didn't ask questions because I didn't know where to start and what to ask . . . Basically it [the content] was about injections, BGSM readings . . . No, [the delivery was] not too rushed." (4CKC-J)

Some of the patients chose not to speak up due to their own usual communication pattern and personality. For example, one patient said that she preferred "keeping problems to oneself" (5WSN). Despite nurses being perceived as concerned, some of the patients chose not to speak when they perceived there to be time pressure.

> "The nurse had limited time . . . I wanted to have a chat with her but I saw many patients waiting, queuing up . . . If I really didn't understand, then I asked. If I knew a bit I didn't make a noise . . . your questions hinder the next patient." (5CKF, P780-P795)

Another patient's comments summed up the situation.

> "If you don't have two-way communication, how can we manage? You become a "Beijing duck" [a Chinese saying for spoon-feeding] . . . Perhaps some patients dare not ask questions. Coupled with that, nowadays . . . "value added" is the trend . . . Everything, really every job needs to add value. The time is shorter for nurses and doctors, patients are coming in and out quickly. Basically, you've no chance to ask many questions. We ask some, but [it is] very difficult to ask more and learn more." (5SOY P498-P502)

6.2.2.4 Perceived limitations of prescribing and persuasion

As has been reported, the patients perceived self-management to be a part of the total life context, in which many other needs competed for their attention. The success of using only the education strategies of prescribing and persuasion to achieve patient compliance was usually short-lived.

> "I had refrained completely from those food items. However, after a while . . . without your awareness, you set up a habit . . . uhh, whenever you had 12 [mmol/L] then you

> became very fearful when you went to the doctor [for a consultation] . . . Then in recent years, I was so lazy . . . I didn't care about doing [BGSM] . . . I explain to them [other patients] that they shouldn't hide away from the disease, but I do the same . . . it's human nature to be lazy . . . The doctors and nurses said that I needed to start insulin . . . so I refrained from food for a while whenever I heard about injections. I was fearful, and ate only vegetables, fruits and the diabetic diet. That really worked; I had some good results. But after a while, my bad habits came back again." (3CTK, P58-150)

Compliance did not go far. Some of the patients who were determined to comply said that they could only do so to a certain degree (6.2.2.2.6). Interestingly, some of the patients developed the self-regulatory skills through trial and errors in learning.

> "I've developed my own version over time, my injection I control . . . add or decrease insulin myself . . . 2 to 4 units. You don't ask doctors . . . "Know yourself and know others; fight 100 battles and win 100 battles" [a Chinese idiom about mastering the internal and external environment] . . . For these things [self-management tasks] you need to have your own ideas; you cannot rely on nurses or doctors to teach you . . . You need to know your body. Everyone is different and everyday is different . . . I'm smarter then them [health professionals]; it's my body . . . Developing this [ability to control] depends on, everyone is different, to, eh, I would say, your ability to assimilate knowledge . . . The nurse helped [my learning] most at the beginning ((Smile))." (1HKK, P458-P492)

Moreover, prescribing and persuasion strategies may have negative effects on patients, although the nurse-patient relationship is maintained by the nurses' genuine concern and other means such as "Facilitating the venting of negative emotion", "Negotiating sustainable behaviour – follow-up" and telephone contacts. Patients may become angry. For example, one patient said that "ten fingers are different lengths" (5CKF, P256-P274), and that comparing her self-management outcomes with an ideal standard annoyed her. Interestingly the patients perceived that relying on these strategies to ask for compliance frustrated both nurses and patients. Whether the patients complied or not was down to the choice of the patients.

> "She thought that you needed to follow her formula of eating so that you would not go the wrong way . . . The nurse works with helpless feelings . . . She's helpless, why, if you don't follow her, she can't [make it] work for you, even though she wants you to become well . . . Just like at a cross-roads, I have to choose, but I myself also feel very helpless." (3CTK, P1070-1098)

6.2.2.5 Education preference

Apart from preferring more specific and positive feedback (6.2.2.2.2), the patients made some suggestions about the format of the education pattern. These included "constant and honest feedback on disease progress", "cooking classes", "field trips to supermarkets", "frequent visits", "peer support system", "repeated education programmes", "yearly reunion of patients who had graduated from the programme", and making "workable suggestions". The central theme amongst these preferences is that the patients preferred experiential learning activities with two-way communication so that they could regain control over the self-management of their condition and the disease progression.

6.2.2.6 Equal partnership and Chinese culture

This writer told the patients that research in the West showed that equal partnership between health professionals and patients was found to contribute to patients' self-management ability and glycaemic control (Williams et al 1998a, 1998b). This writer then asked the patients for their opinion about the applicability of this finding in a HK Chinese context. The patients were divided in their opinions, and some perceived that equal partnership would not work in a Chinese context. For example, one patient with a high social status who engaged in business activities in Europe said:

> "In life philosophy I'm better than her [the nurse], in medicine she's an expert. I must listen to her. This is, if you want to extend your life, you need to listen to her. So it's like seeing a teacher . . . For Chinese equal partnership does not work, we are a bit like this. You need to have respect so you are a bit fearful and then comply, no matter whether it's politics or medicine. If you don't respect them, then you don't care about what they say . . . For Chinese, we have this kind of philosophy, respect brings fear, fear brings the implementation of orders . . . The nurses treat you like a family members. They use "Buddha's mouth, grandmother's heart". Why I said that we need to respect them, [is that] they in fact are experts. You respect them and listen to them, comply with what they say because they are experts. If you say we treat them as peers, for Chinese, equal partners doesn't work." (3CTK, P756-P830)

However, when this writer asked the patients another question about whether mutual respect using two-way communication to decide on self-management methods might work, they welcomed the ideas very much. The same patient with a high social status said:

> "A two-way communication about psychosocial constraints (.) definitely works (.) but will use up a lot of human and monetary resources . . . It works in the West perhaps due to their education level." (3CTK, P954-970)

Another patient had worked in the US for 10 years. He initially stated a strong opposition to equal partnerships, but then said:

> "Of course two-way communication is better . . . because every individual has a different situation . . . [if] I could tell the nurse . . . discuss with the nurse . . . my condition might become better." (3HKF, P800-P830)

The patients who perceived that two-way communication with mutual respect would work in HK typically referred to the constraint of time. For example, one patient who had worked in the Netherlands for four years said:

> "This is good. For health professionals and patients to discuss and communicate should work in HK and help us. But doctors and nurses as well as patients may not have the time . . . Face to face, the time is short. So it's difficult to communicate." (1CSL, P1000-1016)

A patient with post-graduate degrees who had worked in the US said:

> "If patients are asking questions, that means they are concerned about themselves. Their blood sugar control should be better . . . Yeah, I think these findings apply and equal

> partnership would work in HK . . . My experience was that the nurses at the centre were nice and approachable. It should work . . . With an equal footing, give and take, it would be easy to have a discussion . . . But Chinese people may not express their negative emotion in front of strangers." (4CKC-J)

A woman patient with no formal education said:

> "Doctors have specific knowledge, nurses too . . . I have my own knowledge. I'm an elder . . . [with] life experience . . . I had no schooling, but I can manage to chat about my condition . . . but doctors and nurses don't have the time to do so . . . yeah beneficial . . . because this shows their concern by allowing you to voice your opinion and (.) your difficulties in following their opinion." (5CKF, I837-P930)

These expressions suggest that "equal partnership" is an inappropriate terminology in HK Chinese cultural context, but that two major elements of the concept – mutual respect with two-way communication were welcomed by all the patients. The constraints to the occurrence of this concept that they identified were time pressure and the need of relationship building.

6.2.2.7 Conclusion

The thematic analysis of the patient interview data identifies themes about the patients' perceptions of the education process. These themes show great influence of Chinese culture and the acute-care culture, which are discussed in Chapter Seven.

6.3 Nurse perceptions: Fourth sub-unit of analysis

6.3.1 Nursing documentation analysis

A total of 45 pages of nursing documentation of the 20 series of nurse-patient encounters (69 episodes) were retrieved for analysis to identify the nursing focus. An overall pattern in the nursing documentation was identified, which involved two components of entries: assessment data and action taken. Three themes emerged from the analysis.

6.3.1.1 Physiological assessment data

The entry of physiological assessment data reflected the taped nurse-patient interaction process, in that the nurses assessed detailed data on the physiological aspects of self-management of the patients. The entries included lifestyle patterns, BGSM techniques and readings, HbA1c levels, drug taking history, other physiological indicators (blood pressure, body weight), other laboratory tests (lipids levels, renal function test) and diabetes complications (presence and progress). "Drug compliance" was used in 55% of the documentations.

The entry of psychosocial assessment data was occasional. The data covered issues including emotional problems, motivation and acceptance of diabetes, relationship problems, work issues and financial problems. When these data were recorded they were sketchy compared to the physiological data. For example, 5FYS, "feels upset because of conflicts with the husband, but the patient doesn't want to disclose this. Help offered and encouraged to talk to me if she wants to." No record of this issue was found in the documentation of the follow-up visits.

6.3.1.2 Factual knowledge oriented actions

Compared to the assessment data, the data on action taken that were recorded were less detailed. The entries mainly focused on the technical aspects of BG control, and included advice on lifestyle (diet, exercise, drugs), teaching on BGSM techniques and advice on timing and frequency, the adjustment of insulin dosage or suggestions for adjusting OHAs, making referrals (dieticians, podiatrists, social workers), writing notes to doctors and advice on footcare, travelling and sick-day management.

6.3.1.3 Record of telephone contacts

None of the telephone contacts was taped. The nursing documentation shows that six of the 20 patients made use of telephone contact to report to nurses their BGSM readings and associated dietary and exercise patterns, and the nurses adjusted the insulin dosage accordingly. It was confirmed in the nurse interviews that only those calls that lasted more than ten minutes or involved alternation to the medication regime would be entered in the nurse documentation, which suggests that the actual instances of such contacts might have been more frequent.

6.3.1.4 Conclusion

The documentation data corroborates the findings in the other sub-units of analysis that the education process was lifestyle centred and assessment-led, and that the nurses tended to expect drug compliance.

6.3.2 Nurse interview data

This writer contacted the nurses in December 2003 to arrange a time and venue for the interview. All the nurses chose to have their interview at the centre. This writer went to the centre five times (Appendix 12). The thematic analysis identifies seven themes from the nurse perspective.

6.3.2.1 Dualistic ideology of diabetes education: Biopsychosocial and biomedical

The ideology of the nurses of diabetes education was consistent across the five nurse participants. The nurses typically described that the freedom to choose of patients and their engagement in desirable self-management behaviour was constrained by their internal and external environment. The nurses' perceptions were that diabetes education should take a biopsychosocial approach.

> "I think diabetes self-management is for patients to reach the required knowledge and skills, and to achieve a level of self-care. I mean patients can take care of themselves. They

> can face diabetes. Secondly, besides skills and knowledge, it is very important that skills can be divided into small topics like problem solving skills, and what to do when they have a low BG, when there is an emergency, say like when ketones appear, and what they need to do on sick days . . . Also, for diabetes self-management, in addition to what I said before . . . how patients face it . . . as diabetes is a chronic illness, how we engage patients or empower patients to face the illness is important, and psychological and social support is also very important, the support and love [given]. Here, for example, we listen to their stress, and when they have any problems, we tell them that they can ask us." (N 5, N36-N38)

Simultaneously, they also perceived that diabetes education should help patients to develop good glycaemic control, which was the ultimate reason for the referrals, and that nurses wished for the patients to be able to live a normal life.

> "I believe my expectation is high . . . I hope that the patients' control is good . . . Don't let the disease make you feel unhappy. Don't let it affect your daily life, and make you lose your job, lose your friends, and be unable to get married. I think that's also my expectation . . . Yeah, they know [my expectations]. I tell them: "I hope very much that you will be happy" ((smile))." (N 5, N402-420)

The nurses related the superior position of glycaemic control in diabetes education to physiological studies (UKPDS 1998), and put emphasis on the contribution of tight glycaemic control to the quality of life and absence of diabetes complications in patients.

> "You have many research findings . . . many years of research, which has proven that lowering your HbA1c can reduce your risk of complications . . . The scientific literature . . . you can in fact improve their quality of life . . . I'm a bit materialistic, in this sense, about resources, I believe that with education, we can prevent admission . . . decrease healthcare costs . . . We as nurses can contribute to this." (N 3, N1072-N1100)

Although the nurses perceived the relationship between glycaemic control and desirable self-management to be non-linear, citing that diabetes is "a progressively degenerative disease" (N 2, N112), they perceived "a positive relationship" (N 1, N91) between the two aspects, and believed adopting desirable self-management behaviour to be important (N 4, N17). The nurses' perception was that with tightened glycaemic control, both nurses and patients could have a sense of control over the disease progression.

> "Because from BG [we know] whether your control is good enough. You can indicate, or you can foresee your complications, and you will know what your treatment will be. And everything is based on this. Not only BG, but also you can notice many other things. For example . . . lipids, renal function, and many other . . . but this [BG] is our focus." (N 5, N66)

The nurses perceived the priority in diabetes education to be developing patients' basic knowledge on hypo- and hyperglycaemia to save lives, which involves survival knowledge and the skills that the patients must master.

> "We have many experience with cases that are admitted because of hypo or hyper . . . [which] can be as serious as fatal. When patients are sick their BG will have many changes . . . these are acute problems and need to be dealt with urgently." (N 4, N41)

> "Diabetes is a chronic illness. Patients need to rely on themselves. Follow-up [with nurses and doctors] is only every three months . . . BGSM is a means of checking the control, raising awareness . . . Self-management means doing self-monitoring." (N 2, N92)

Although the nurses understood that patients' difficulties in self-management mostly arise from their total life context, the nurses perceived that by raising patients' awareness about diabetes complications, the patients would put in extra effort to overcome the difficulties. In addition, the nurses understood that they had limited control over their patients' behaviour, and so employed a positive nurse-patient relationship with a view to sustaining patient behaviour.

> "Teaching may not lead to [patients] following completely your instructions . . . Many other factors have an influence, such as financial [factors]. Regular BGSM may not lead to good control . . . we can help by standing by their side . . . by means of constant reminding and being a friend to explain and let patients make an informed choice." (N 2, N136-N148)

> "Also, I think that emotional support is very important. Patients feel that there's someone supporting them, something to fall back on, some backup, for them to ask when they don't understand, it is comforting. Because . . . when you have problems that you can't handle, there is always an alternative way for you . . . For example, many patients won't talk about their disease; instead, they talk about their relationship with their families." (N 5, N296-N298)

These perceptions indicate that the nurses' ideology to diabetes education is dualistic. One approach is biopsychosocial, which is informed by their clinical practice experience and knowledge that patients' self-management is a part of a total life context and might be constrained by internal and external environments. The second approach, which is biomedical, is informed by physiological research findings. However, the second approach took priority in practice. The following themes provide an understanding as to why the biomedical approach took precedence.

6.3.2.2 Patient empowerment: Function, indicator and process

This writer asked the nurses to describe their perceptions of patient empowerment, which was included in the manual (Chan et al 1998) published by the centre as a concept to guide diabetes care and education. The nurses' perceptions can be categorised into three components: function, indicator and process. These perceptions are consistent across the five nurses.

In relation to function, the nurses perceived that empowerment serves to help patients help themselves, and that this is important in educating for diabetes self-management because patients have to face their own life situations everyday (N 1, N975). Empowerment was perceived as giving patients the power to control their disease, and to involve a relationship that goes beyond that of teacher and student to an equal partnership (N 4, N43).

In relation to the indicators of empowerment, the nurses perceived that empowered patients show adequate knowledge and motivation, engage in two-way communication, actively seek information in the education process, successfully adopt self-management tasks and feel good about themselves. However, the nurses also perceived using patient empowerment with some patients to be difficult. The primary role of educating these patients was perceived to be that of ensuring their knowledge adequacy.

> "About diabetes knowledge . . . in the textbooks . . . [contain] the techniques needed for self-management . . . Some patients may not have any insight [about self-management]. Some couldn't careless . . . So, I try my best and hope I can help them change their attitude . . . Let them develop awareness about diabetes and how it influences them. I hope they can change, that is, their attitude about diabetes control. Some patients' lifestyles are a mess . . . I hope that they can change their behaviour if possible." (N 1, N600-N620)

The three diabetes nurses said that they did not directly facilitate patient empowerment, in part due to patient load and in part because many of the patients are illiterate. In addition, they perceived that with adequate knowledge, patients develop empowerment on their own. The main strategies that they applied in the process were information giving and providing resources. The ESAS analysis confirms their expression.

The two nurse specialists had a deeper understanding of the process of empowerment, and believed that it should facilitate patients' ability to control their disease and risk of late complications. This is achieved by explaining the rationale of self-management, whereby patients develop an understanding of themselves, and their ability to identify problems and solutions.

> "In the process of education . . . for empowerment . . . it is important to let patients know what their situation is, and hence to encourage patients . . . to know clearly . . . what their weakness is, what their strength is, and to face the impact of the disease on daily living. On the other hand, from this knowledge base . . . when they go to see the doctor, they know how to ask and what to ask about their own condition and can find other people to help them find more information . . . because if they don't know how to identify their problems or to help themselves, by just depending on health professionals . . . when they are faced with problems, they don't know how to handle them . . . Secondly, we also encourage their families to support them" (N 5, N40).

The development of the understanding and ability of the patients was perceived as a step by step progression, during which nurses should take heed of patients' feelings and use their relationship to encourage them. The nurses also perceived assessment to be important in deciding how to empower patients. Some elderly patients are dependent and ignorant of self-management tasks. With these patients, the first step was perceived to be developing their basic knowledge about diabetes self-management.

> "I use empowerment and it really depends on what kind of patients they are . . . Because I think that the method doesn't suit all patients. For example, the elderly patients, many are basically very dependent . . . They haven't got the knowledge or background. If you ask them to change, it just confuses them . . . Different patients need different strategies.

> Empowerment is one of those [strategies] . . . Some elderly patients are very compliant. For this kind of patient, we may give them some instructions . . . about basic concepts of self-management." (N 5, N628-N646)

These perceptions illuminate the objective finding of the ESAS analysis that the primary focus of the nurses is assessment and BG monitoring, and they only occasionally employ empowering strategies to help patients make healthy choices (5.3.3.6).

6.3.2.3 Inadequate mastery of empowering strategies

The ESAS analysis demonstrates that some of the empowering strategies that might enhance patients' psychosocial self-efficacy were never used (Table 14). When this writer asked the nurses the theories or principles that informed their education practice, the nurses typically articulated them as being "informed choice" and "patient empowerment".

An important finding from the data on nurse perceptions is that they had an inadequate understanding and mastery of empowering education strategies that might facilitate the improvement of patients' ability, especially in terms of psychosocial self-efficacy skills. Upon exploring the education strategies that can develop these skills, the nurses typically perceived factual knowledge input and encouragement to help.

> "That is, for patients to know, to understand more about their disease. Because if you have no understanding of your disease, you can hardly be empowered . . . After they know more about their disease . . . actually for empowerment one of the elements is encouragement. . . . [It is important] for patients to know more about why there are variations in their [BGSM] readings . . . They can come to know more than their doctors do." (N 5, N546-626)

On exploring where the nurses had learned the education strategies that they used, it was found that they typically used professional programmes on diabetes education to identify the needs of patients and to solve their problems accordingly (N 2, N936-N966). In addition, the nurses learned the strategies through reflection on practice.

> "I believe that everyone in doing their job will gain experience . . . You know from their way of talking what they are concerned with the most. Some may ask you abstract questions such as: "How poor [control] am I?" . . . In fact, they may want to know more . . . According to patients' responses and my past experience . . . Some patients just can't understand the concepts . . . but they trust you and say: "Nurse, you tell me and I will follow". For these patients, I must make abstract concepts less complicated . . . For this type of thing, it depends on your reflection and your intuition at the time." (N 4, N53)

The nurses explained that they relied on accurate assessment and the use of analogy to give clear information.

> "I like to use examples . . . When you've fallen down, you refuse to stand up, and you are on your knees. Even if two nurses tried to pull you up; they couldn't do so. This depends on whether you want to take this action [self-management task]." (N 3, N212-N222)

The nurses experienced difficulties with working on patients' glycaemic control through persuasion, but appeared to have no other means.

> "Whether patients are willing to do so is very complex. I believe persuading someone to exercise is difficult . . . it really depends on their motivation. You can explain the benefit, and think of ways that may work for them, but it is up to them to perform or not . . . It is of no effect if you scold them." (N 3, N958-962)

In addition, the nurses perceived that they needed to show an understanding of patients' difficulties, and so they listened to their psychosocial constraints using the strategy of "Facilitating the venting of negative emotion". The nurses worked around the patients' convenience when negotiating follow-up appointments to circumvent difficulties in attending, using the strategy of "Negotiating sustainable behaviour". Again, these findings corroborate the ESAS analysis.

Interestingly, the nurses quoted the use of telephone contact as one of the important education strategies, because it enhances close monitoring and provides support. It also enhances patient access.

> "I found an ulcer on the leg and explained about the importance . . . asked him to go and see a podiatrist . . . I phoned up the patient's son and asked about the progress in the healing of the foot ulcer . . . We might have needed to admit him for intensive treatment . . . It might have resulted in amputation or death." (N 3, N804-N810)

> "I phone them to show my concern, to greet them and remind them to perform their injections. You will die if you don't perform injections. . . . Some patients need to take oral drugs . . . Some need more follow-up work and so I phone them. Sometimes, you may have too many patients and you haven't really got enough time, or sometimes the patients don't have any time to come, they need to work and so I ask them to report the [BGSM] results [over the phone] . . . so we can adjust the medicine . . . So if patient didn't prick fingers, I will phone them to remind them about injections . . . I remind the patients, in my spare time, by phone." (N 5, N364-N372)

6.3.2.4 Ambivalence about equal partnership

This writer firstly told the nurses the research findings about equal partnership in diabetes care and education in the West (Williams et al 1998a, 1998b), and then asked their opinion about the applicability of these findings in a HK Chinese context. The nurses unanimously appreciated the use of equal partnerships.

> "I believe this works in any society. Firstly, doctors' role shouldn't be too authoritative. Many times, for behaviour change you need to negotiate with patients. This [changing behaviour] relies on our relationship with patients . . . The communication is two-way . . . It should be about equal partners . . . if you want your patients to follow you to do something, you need to lower your status and develop a relationship, not use authority." (N 4, 63)

The nurses believed that this concept would apply in HK and that old age and illiteracy were not barriers to its application, citing examples from patients on research programmes or insulin pumps.

> "We can see that some patients, especially patients with pumps, need to discuss the whole case with the doctors . . . The doctors and nurses have a good relationship with the patients . . . Some patients on research projects . . . why do they achieve good control? It is because they always come . . . and secondly, the doctors and nurses explain clearly to them . . . Such patients have good compliance . . . their HbA1c results are much better than others . . . the most important thing is to let patients talk. Then you can show your concern. In fact, every patient is receptive to having someone caring about them . . . Age is not a problem . . . Some of the older patients even don't know a single [Chinese] character, yet they become very active . . . I think that for Chinese, compared to the relationship between patients and doctors, [the relationship with] nurses is much better. Patients, some are afraid talking to doctors, don't want to talk much about themselves. Therefore the relationship with nurses is better, more equal." (N 5, N778-N810)

The nurses perceived that the most important element for making an equal partnership work is adequate interaction between patients and health professionals. They also stated that genuine concern and negotiation activate patients to ask questions and care for themselves. However, the nurses identified three factors that hinder the application of equal partnerships.

The first factor is time pressure. There was great time pressure as a result of the large patient load. The nurses perceived that equal partnership requires lengthy interaction. The patients also had this perception (6.2.2.6).

The second factor is Chinese culture. Coupled with time pressure as a barrier, the nurses perceived that equal partnership might not work for every patient given the Chinese cultural practice of respecting authority. There is also an imbalance in knowledge between nurse and patient, and thus equal partnership might only be applicable to the young and educated.

> "((3 sec)) It depends, if patients are young, I believe they can accept it [equal partnership]. . . . For example, older patients listen and follow, perhaps they don't have adequate knowledge . . . If we use this model of equal partnership to control glycaemic levels together with patients, they might become fearful." (N 1, N1091-N1097)

> "Not yet fully achieved in HK . . . Most patients like to listen and follow instructions from health professionals . . . They can only join in the discussion when they have developed good knowledge . . . Most [patients] may not have the confidence to talk about medicine or treatment." (N 2, N1128-N1180)

The third factor is about ensuring survival. Patients with an unstable BG or a "couldn't careless" attitude need close monitoring from nurses to survive, and the nurses could not allow them to take up an equal partner role.

> "It works for some patients only . . . for those with poor control and a couldn't careless [attitude] it won't work . . . For example . . . [a patient] ate the whole [Chinese] new year pudding . . . Uhh, BGSM readings up to 30 . . . I would have to give a directive not to eat such things." (N 3, N1233-N1308)

6.3.2.5 Perceived roles and relationships

The findings from the nurse perceptions data corroborate those of the ESAS analysis and the patient interviews. The nurses perceived themselves as expert teachers, genuine supporters, detectives for what caused poor glycaemic control and giving advice accordingly and close monitors of glycaemic control.

> "These patients are sent back to us [by referral] because their readings are too high. Doctors really rely on you to help monitor patients. This is the reality." (N 3, N1008-1010)

> "Actually the responsibility . . . from a medical perspective . . . we can see that there are many factors . . . problems to be sorted out . . . We need to find out the reason why patients cannot achieve the target." (N 5, N90-96)

The nurses perceived that compliance is difficult for patients, and thus they tried to develop a positive nurse-patient relationship to encourage compliance (N 5, N296-N298; N 2, N136-N148; N 4, 63; N 5, 500). The nurses used strategies such as telephone contact and walk-in consultations to show their genuine concern. They perceived that patients found them to be helpful and resourceful.

The nurses regarded being accepted by patients to be very important, and used culturally appropriate communication behaviour accordingly to maintain the relationship.

> "Of course, when you discover from the memory function of the meter that the [BGSM] readings are not those the patients have given you, you tell them that there are discrepancies. No matter whether patients want to cheat on you on purpose or not, ((laugh)) often you gently say that: "Your [reported] record is wrong. The meter has got a memory system, you can trace back the readings. After each pricking, you can copy the reading into your record book to avoid relying on your memory". Often I help them with an excuse . . . With an excuse, it is easier for patients to accept me. This is very important [to save patients' face]." (N 4, 35)

6.3.2.6 Nurses talking more: Contributing factors

The nurses perceived that many factors contributed to this phenomenon. These perceptions can be grouped into nurse-related factors, patient-related factors and healthcare-system-related factors. The nurses perceived that dominating the conversation is a common fault amongst educators, who always talk more because of the worry the recipients do not understand. The nurses claimed that they repeat the information to make sure that patients remember, especially with elderly patients. As patients usually remained quiet in the education process, thus nurses took the lead to make a conversation, hoping it would warm up patients.

The nurses perceived that patients often have limited knowledge about diabetes, and do not want to make a start; this is especially so in elderly people who want to save their "face", and many patients stay quiet during the education process due to the respect for authority that is inherent in Chinese culture.

> "Here, not to mention the function, most patients don't even have knowledge about the name of the drugs they are taking; they may take the drugs wrongly. And also the culture of not asking . . . especially amongst elders . . . Some patients, you ask them a lot but they just sit there and don't make a sound. It is difficult to invite them to participate." (N 3, N664-680)

In relation to healthcare-system-related factors, nurses reported that there is always a long queue of patients waiting and many interruptions. This is confirmed by the field notes (Appendix 12) and the patient interview data. The nurses perceived that patients sense the time pressure and keep quiet unless they have a serious problem. The nurses also reported that with the increasing patient load they cannot afford to make frequent appointments with patients, but there are many topics to be covered, thus the nurses make use of the time when the patients are not speaking to talk.

6.3.2.7 Starting with blood glucose assessment: Contributing factors

The nurses' perceptions revealed three main factors that contribute to this phenomenon. Firstly, as the patients were usually quiet during the interaction, the nurses wanted to use a topic that both parties could relate to start with, which in this case was BG, BGSM or the BG readings. The nurses relied on this topic to probe further, to assess or to detect any technical or psychosocial problems. Chinese patients were perceived by the nurses to be being reserved about expressing their feelings, but over time the development of a rapport the patients might disclose these issues. Thus, BG was perceived to be a good starting topic.

> "Usually you have patients who won't say anything . . . Then I start by asking the patients how they are . . . Mostly they show the record [BGSM readings], and I start asking about the record . . . They need some warm up . . . If you know the patients more, have met them a few times, then you may have developed a rapport. You may remember . . . something about their family . . . then next time when I meet the patients again, I ask how that is going on . . . Talking about their failures or unhappy experience . . . mostly they will not talk about it. Umm, I think that Chinese people sometimes may be a little bit reserved and don't like to express these issues." (N5 N116-N136)

Secondly, the nurses perceived that one of their main roles is to detect which self-management problems are leading to poor control. Here again, assessing the BGSM is a good strategy to use to fulfil this role. The third factor is closely related to the second. The nurses stated that in their clinical experience patients may not have an awareness of their poor glycaemic control, although they have been referred for this reason, mainly because of the insidious nature of diabetes. Thus, pricking the fingers of patients for a spot sugar reading provides an objective data to raise patient awareness. The nurses believed that this adds to their persuasive power to ask for more stringent self-management behaviour.

> "But mostly, diabetes is insidious. You won't have clear symptoms. If you have the reading . . . you can remind the patients that if they don't prick their fingers they won't know that their reading is so high, almost 20. If you seem quite well and can walk, you would never think of the disease, so it is difficult for me to bring in a topic about it." (N 5, N208-N214)

> "Some passive patients will only come because of their doctor's referral . . . I want to help them to own this as their problem . . . They may start to control BG . . . the police need to look for hints to catch the thief . . . [and] patients need to report some evidence to the police." (N 3, N264-N312)

6.3.2.8 Conclusion

It is evident that although the nurses hold a dualistic ideology of diabetes education, in practice they apply the preventive model. The self-empowerment model was merely an espoused theory. These findings are discussed in Chapter Seven.

6.4 Empirically based pattern and pattern matching

This section firstly merges the key findings from the four sub-units of analysis to derive an empirically based pattern, which is then compared and contrasted with the three templates that were derived from the theoretical framework utilising pattern matching logic (Yin 2003a, 2003b) to ascertain the theoretical model that was adopted by the nurses in diabetes education.

Crosschecking of the findings across the sub-units was conducted to identify the extent to which the findings converge. An examination of the key findings shows that they corroborate and validate the data that were collected from each of the multiple research strategies (the four sub-units and their data collection methods), each of which has a unique angle.

Table 19 presents the empirical pattern by putting the key findings along-side the theoretical propositions of the three templates. Pattern matching logic (Yin 2003a, 2003b) was employed to compare the empirically based pattern with the three templates developed at the outset of the study. The pattern matching confirms the empirically based pattern to be much closer to the template of a preventive model.

6.5 Summary

This chapter and the previous chapter report the findings from the four sub-units of analysis, in which the education process for diabetes self-management within the context of nurse-patient encounters in an education centre in HK is described and evaluated. It is concluded that a preventive model with Chinese characteristics is in used at the centre. The next chapter discusses the overarching themes and key issues that derive from the findings. Implications and recommendations of this study are also given.

Table 19

Pattern matching between the empirically derived model and the three templates

Components	Empirically derived Model	Educational Model	Preventive Model	Self-empowerment Model
Theoretical underpinnings and ideology	Superior position of research-based knowledge about tight glycaemic control leading to prevention of diabetes complications and improved quality of life. Desirable diabetes self-management is constrained by individual limitations and environmental factors, informed by clinical experience	Voluntarism: Upholding patients' freedom to choose, With knowledge and understanding people can make informed choices.	Supreme position of medical knowledge: Adopting professional approved behaviour leads to prevention of diabetes complications.	Freedom to choose (voluntarism) is constrained by individual limitations and environmental factors. Enabling patients to have control over health requires a process that strengthens patients' personal capacity and creates supportive environments.
Roles and responsibilities	1. Nurses as detectives and BG monitors, Patients as submissive informants who comply with prescribed behaviour. 2. Nurses as informational and emotional supporters, Patients as obedient students.	Patient: Information seeker and decision maker. Nurse: Information giver and expert.	Patient: Information receiver and adherent. Nurse: Information giver, adherence observer and expert	Patient: Problem and resource explorer. Nurse: Facilitator and equal partner with patients.

Communication skills and education strategies	Value-laden approach of the nurse: Engagement in task-focused communication style; Adoption of nurse - centred assessment strategies, factual knowledge oriented strategies, and some empowering strategies; Control over the education process.	Value-free approach of the nurse: A balance between task-focused and socioemotional communication behaviour; No coercion; Value clarification.	Value-laden approach of the nurse: Task-focused communication behaviour; Use of persuasion; Prescriptive.	Non-judgemental approach of the nurse: A balance between task-focused and socioemotional communication behaviour; No coercion; Value clarification; Exploration of patients' goals and problems, Development of patients' self-efficacy, Mobilistion of resources.
	Patients: Engagement in task-focused communication style; Frequent agreement; Limited power and control over the education process.	Patients' use of communication skills shows control over the process.	Patients' use communication skills shows limited control over the process.	Patients' use of communication skills shows control over the process.

Relationship	1. Nurses as police and patients as suspected criminals: tension. 2. Nurses as nurturers and patients as nurturees: relief. 3. Patients perceive a positive relationship with nurses.	Patients as active information seekers and nurses as expert providers.	Patients as obedient receivers and nurses as experts in prescribing self-management behaviour.	Partnership.
Impact on patients	1. Enhanced perceived adequacy of knowledge for self-management. 2. Cannot rely on nurses to make self-management decisions as life is different everyday, also find integrating prescribed behaviour into daily life difficult. 3. Improved HbA1c levels. 4. No change in C-DES scores. 5. Perception of limited control over the disease.	1. Knowledge gained. 2. Self-management decisions made independently. 3. Improved HbA1c levels. 4. Perceptions of enhanced control over the disease.	1. Knowledge gained. 2. Reliancy on nurses to make self-management decisions, compliance. 3. Improved HbA1c levels. 4. Perceptions of limited control over the disease.	1. Knowledge gained. 2. Self-management decisions made independently. 3. HbA1c levels may improve. 4. Diabetes-specific psychosocial self-efficacy is enhanced. 5. Perceptions of enhanced control over life and the disease.

Chapter Seven - Discussions and Conclusions

7.1 Introduction

This study aims to evaluate the education process for diabetes self-management. Adopting a case study design and multiple triangulation, it provides a holistic description of the nurse-patent interaction process of diabetes education in a nurse-led centre in HK. The merged findings from the four sub-units of analysis show that the nurses used a preventive model of diabetes education. This chapter discusses the major findings and draws conclusions.

This chapter starts with a discussion of the two overarching themes that arise from the findings (7.2). The themes, control and concern, explain what occurred in the education process. Based on the empirical findings, the theoretical framework constructed at the outset of the study is revised to allow a better understanding of the diabetes education process in a HK Chinese context (7.3). The three key issues from the findings that are of significance to a paradigm shift to empowerment are then discussed (7.4). The discussion of the overarching themes and key issues draws on the cultural characteristics of Chinese culture and the acute-care culture revealed by the data to be of significance to the education process. Recommendations (7.5) for improving nursing practice in diabetes education are presented and implications for further research are discussed (7.6). Finally, the limitations (7.7) and conclusions of the study are drawn (7.8).

7.2 Control and concern

Taken together, the findings from the four sub-units of analysis reveal that the education process revolved around two overarching themes of "control" and "concern". The nurses worked on the glycaemic control of the patients by controlling the education process and showing them concern, whereas the patients submitted to the control of the nurses but expected them to display genuine concern. These themes are underpinned by Chinese culture and the acute-care culture. The themes run through the contributions, and perceptions and experience of the nurses and patients.

7.2.1 Nurse contributions

7.2.1.1 Ideology of diabetes education

The way in which the nurses behaved in the education encounters was influenced by their values and associated beliefs about diabetes self-management and diabetes education (Anderson and Funnell 2005b). As shown in the nurse interview data (6.3.2.1), the ideology of diabetes education that the nurses held was dualistic, and was influenced by two sets of assumptions. The first set of assumptions is biopsychosocial, and relates to the notion that patients' self-management and freedom of choice is constrained by the internal (for example, motivation) and external (socio-economic) environment. These assumptions were informed by the clinical experience of the nurses, and meant that the nurses perceived the role of diabetes education as that of providing patients with the support and encouragement to overcome such environmental constraints. This suggests that their ideology of diabetes education is closer to the ideological commitments of the self-empowerment model (Tones and Green 2004).

However, the nurses' perceptions (6.3.2.3) as to what constituted an empowering process indicate an inadequate mastery of the facilitation of such a process. They believed that with the provision of knowledge and encouragement alone, patients would be empowered. Although the indicators of empowered patients that the nurses identified (6.3.2.2) show the characteristics of activated patients (Williams et al 2005b), with autonomous motivation and the active seeking of resources for self-management, this writer argues that simply providing knowledge and encouragement is insufficient to enable patients to develop a sense of control over the decisions and actions that affect their health.

The second set of assumptions that the nurses held was biomedical (6.3.2.1), and was informed by the physiological research findings (UKPDS 1998). The nurses believed tight BG control to be associated with better quality of life and improved physiological outcomes, and accordingly that the focus of diabetes education should be the enhancement of glycaemic control. The nurses believed that through knowledge input and the raising of awareness about diabetes complications, patients would put in extra effort to overcome the psychosocial difficulties of self-management. These perceptions show that the nurses' ideology of diabetes education was also in line with the assumptions of the preventive model that knowledge leads to attitude change and in turn to behaviour change (Tones and Green 2004).

The four sub-units of analysis demonstrate that the preventive model was the theory in operation at the centre (5.3 and 5.4) and that the self-empowerment was marginalised as an espoused theory. This finding echoes the work of other scholars of health education in nursing practice (Benson and Latter 1998, Latter 1998). What bound the nurses to the preventive model is further discussed in Section 7.4.

7.2.1.2 Controlling behaviour

This section discusses the nurses' communication style (RIAS analysis) and the usage patterns of the various education strategies (ESAS analysis). The findings indicate that the nurses used controlling behaviour and that the education process was filled up mainly with task-focused exchanges on lifestyle issues. The nurses often blocked topics raised by the patients and actively played the roles of detective and BG monitor using nurse-centred assessment and factual knowledge oriented education strategies.

The RIAS analysis indicates that the nurses engaged in more task-focused communication than socioemotional (5.3.2.4). The nurses dominated the encounters by speaking more and asking more questions than the patients (5.3.2.2). The majority of their questions were closed-ended (5.3.2.5). The encounters focused on giving information on lifestyle issues (5.3.2.6). In many ways, these findings parallel those of the two previous RIAS studies of diabetes consultations in the US (Hampson et al 1996) and the Netherlands (van Dulmen et al 1997), and are consistent with those reported in non-RIAS studies of nurse-patient communication in diabetes education (Street et al 1993) and other health education encounters (Baggens 2001, Poskiparta et al 1998, Kendall 1993, Kristjanson and Chalmers 1990, MaCleod Clark et al 1990), which suggest that medical management is the prime goal that shapes provider-patient interaction in education encounters. The literature suggests that a prescriptive medical approach to the self-management of chronic illness is widespread (Rogers et al 2005, Koch et al 2004).

This writer, in reviewing the chronic illness and diabetes self-management literature (See Section 2.5), infers that to self-manage successfully chronic illness, patients require four major competences: medical knowledge, life skills to negotiate care with health professionals and the healthcare system, the ability to adapt to role changes and the ability to manage negative emotion. To facilitate these four competences is to develop self-efficacy in patients, both in the technical and psychosocial aspects (Marks et al 2005a, 2005b). In light of the literature (Curtin et al 2005, Fisher et al 2005, Sigurdardottir 2005, Paterson et al 1998, Corbin and Strauss 1988), the findings in this study illustrate that the current education process falls short of attending to the psychosocial aspect of self-efficacy.

In this study, the ESAS analysis finds the education process to be characterised by a three-phase structure that is composed of the introductory, working and closing phases (5.3.3.2.1). The introductory phase was typically short with no orientation as to the purpose, length and frequency of encounter; the roles expected from each party and the criteria for the termination of the programme. This hindered the patients' sense of control over the education process, which contradicts the WHO ideology of empowerment (WHO 1998e).

The final phase of the education process, the closing phase of the final visit was again typically short and showed a minimal consolidation of patient learning. The nurses missed the opportunity to invite patients to revisit their problems with glycaemic control and their solutions to them, and to attribute their success to their own efforts. This lack of consolidation hampered the patients in developing diabetes-specific technical and psychosocial self-efficacy (Chau et al 2005, Anderson et al 2000). Indeed, some of the patients perceived the need to call "patients back every year to tell them" about the threat of diabetes complications so as to maintain their self-management behaviour (6.2.2.2.2).

The ESAS analysis identifies an assessment-led pattern (5.3.3.2.2) in the working phase of the education process that comprised cycles of education strategies that started with assessment and were followed by typically, "Traditional teaching" and "Prescribing behaviour change". Although this pattern has never been reported, it is alluded to in studies with community nurses in Canada (Kristjanson and Chalmers 1990) and the UK (Kendall 1993). This pattern of practice may in part be due to four decades of nursing training in nursing process (Lindsey and Hartrick 1996), which typically starts the cycle of interventions with assessment. An assessment-led pattern may be appropriate when it is egalitarian and client-centred (Lindsey and Hartrick 1996), but, as is shown in the ESAS analysis, the limited assessment of felt needs and resources available for self-management kept the pattern of assessment as nurse-centred.

The nurses actively played a detective role (5.3.3.3) to investigate what was causing poor glycaemic control in patients, and that developing the ability in patients to detect their own problems and find solutions to them was secondary. Cooper et al (2003) report that nurses struggle to respect the self-perceived needs of diabetic patients. It has also been observed that health professionals tend to solve self-management problems of patients on their behalf, instead of activating patients to be their own managers (Lorig 2003, Holman and Lorig 2004).

Lindsey and Hartrick (1996) examined the philosophical underpinnings of health promotion and the nursing process, and maintain that the two concepts belong to incongruent paradigms. The nursing process came into being from the acute-care model four decades ago, and focuses on pathophysiology and solving problems for patients. This is in contrast to the health promotion paradigm, in which patients are regarded as their own experts who have the power and potentials to define and solve their own problems. Substituting the term "nursing process" with "engagement process" has been suggested (Lindsey and Hartrick 1996, p109), in which the first step should be "listening to the client". This suggestion has implications for HK nurses, given the Chinese cultural practice uncovered in this study.

The findings also indicate that the nurses played an over-protective parental role by controlling the education process. After a detailed assessment of the lifestyle aspect of self-management, the nurses moved on to factual knowledge oriented strategies and played the role of BG monitor (5.3.3.4). The nurses used plenty of education strategies of "Prescribing behaviour change" and "Persuasive communication" in an attempt to control the self-management behaviour of patients.

The control that the nurses had over the education process is exemplified by their behaviour of blocking topics raised by the patients. Although the patients also occasionally blocked topics that the nurses presented, the nurses blocked far more frequently and always regained the lead in the conversation (5.3.3.5). The nurses' blocking behaviour involved either ignoring the topics that the patients introduced or stating directly the time pressure and the need to focus on the nurse-identified topics, namely, BG related issues (5.3.3.4.7).

Nurses' blocking behaviour in healthcare encounters has been a consistent finding (Kruijver et al 2000a, Caris-Verhallen et al 1997) for two decades (Macleod Clark 1983). Although power differentials and provider domination have been observed in nurse-patient (Kettunen et al 2001, Kruijver et al 2000a) and doctor-patient (Baggens 2001, Freeman and Loewe 2000) encounters, many studies report high levels of patient satisfaction with health professionals (Stamler et al 2001, van Dulmen et al 1997, Makoul et al 1995, Rost et al 1991). The patients' perceptions of the education behaviour of nurses are discussed in Section 7.2.4.

Given the body of literature that supports letting patients with chronic illness be their own managers (Anderson and Funnell 2005b, Holman and Lorig 2004), the finding of overprotective parenting and paternalistic practice suggests that nurses should reflect on the appropriateness of such behaviour in educating for self-management.

Researchers who investigate Chinese communication processes report the deep influence of hierarchy and role relationships (Gao et al 1996). In Chinese culture, the hierarchical structure defines one's status and in turn one's roles. "One's sense of self is embedded within multiple prescribed roles" and "Chinese communication is relation-oriented" (Gao et al 1996, p283). A prominent characteristic of Chinese communication is "listening-centredness" (Gao et al 1996, p285), which implies an asymmetrical style of communication determined by existing status and role relationships. Individuals in lower positions listen and make a few supporting comments to show their attentiveness, whereas those of a higher status engage in most of the talking. Status is derived from many sources: one's expertise in a subject matter, such as the expertise of nurses in diabetes care and education; one's position in the family, such as parent; and one's position in a learning setting, such as a teacher. An harmonious relationship is important in Chinese culture, and is maintained by assuming the appropriate role relationships.

In a Chinese cultural context, nurses and doctors, in addition to being regarded as professionals with specific expertise, are expected to play the role of caring family member or parent (Wong and Pang 2000, Shih 1996), as is reflected by the Chinese proverb that "healers have a parent's heart". Chinese culture is deeply influenced by the teaching of Confucius (Li 2003).

In the Confucian orientation (Legge 1971), health professionals have an obligation to be benevolent (*ren*), and are not ordinary people but "kind-parent-like master[s] practicing the virtue of *ren* with special medical skills for pursing the Confucian moral ideal . . . of being a *junzi*" (Fan and Li 2004, p184). Legge (1971, 1963) translated the word *junzi* to mean "superior man" (Legge 1971, p150) who is constantly seeking to follow the Confucian way of living (Li 2003). A *Junzi* demonstrates the characteristics of "self activation, self cultivation, self reflection, self reliance and moral authenticity" (Tsai 2005, p160). Pursuing these characteristics is regarded as an autonomous activity, and as one of the two aspects of a superior person (*junzi*) (Tsai 2001, Legge 1971).

The cultivation of the Confucian way of living does not occur only within oneself, but also within and with others (Legge 1971). This is exemplified in the virtue of benevolence (*ren*), the Chinese character for which depicts two people walking together (its pronunciation is the same as that of the Chinese character "human"). Benevolence is a facet of human relationships and takes place when health professionals heal patients (Tsai 2001). A superior person is a "relational person" who "realises altruism in interpersonal transactions" (Tsai 2005, p163). This realisation is regarded as a relational aspect of a superior person (Tsai 2001, Legge 1971).

In addition to being one of the most influential thinkers in Eastern philosophy and Chinese culture, Confucius is called the teacher of ten thousand generations. When Confucius taught students, he did not lecture them, but invited questions (Li 2003, Legge 1971). He often framed the responses to these questions as other questions for his students to reflect upon. He regarded every person as having the potential to contribute to the learning of others, and did not expect obedience but humility (Li 2003).

In light of the Confucian orientation, it appears that the nurse as *junzi* and the Chinese norms of "healers with a parent's heart" should not conflict with the concept of self-empowerment, as both uphold the cultivation of autonomy. Nevertheless, Tsai (2001) warns Chinese health professionals against the unwitting adoption of medical paternalism, which arises from the over-emphasis of the relational aspect of a superior person and the under-emphasis of the autonomous aspect. Health professionals may put public interest and the common good (less people suffering from diabetes complications entailing less of a burden on the healthcare system) before individual rights (patients' decision on diabetes self-management). The nurses in this study might regard the protection of the wellbeing of diabetic patients as a moral obligation in practising benevolence, and as fulfilling their role-specified responsibilities, but this might suppress their attempts to cultivate patient autonomy.

The concepts of paternalism and self-empowerment are incompatible (WHO 2005, Tones and Green 2004, Labonte 1990). To circumvent the problem of paternalism, Tsai (2001) suggests that Chinese health professionals should take heed of Confucius' teaching in The Doctrine of the Mean (or The State of Equilibrium and Harmony) (Legge 1971) that on becoming a *junzi*, health professionals should maintain a balance between the autonomous and relational aspects of the Confucian way of living, together with a critical understanding of the environment of patients.

It has been suggested that the adoption of paternalism amongst Chinese health professionals may come from the Western tradition of medical practice (Chin 2002, Tsai 2001). Scholars dismiss the notion that health professionals know best and that this therefore justifies them to make decisions on behalf of their patients (Coulter 1999). Unfortunately, medical paternalism is still widespread around the world, especially in the US and the UK (Cody 2003). Cody (2003) suggests that this may stem from the traditional separation of the scientific and ethical knowledge base of healthcare practice. Cody (2003) calls for reflection on the uniqueness of nursing in its respect for human dignity, valuing of relationships and appreciation of the complexity of human living. Although acknowledging the constraint of a medically dominant healthcare system, Cody (2003) cautions nurses that they are abrogating their duty if they allow the continuation of paternalism within the nursing discipline. The implications of this are discussed further in Section 7.4 and 7.5.

The nurse interview data further illuminates the ESAS findings. Although the nurses did not explicitly associate their controlling behaviour with the parental role, they perceived that many patients especially the elders listened and followed instructions (6.3.2.4). The nurses believed that they had a great responsibility to identify the problems that patients had with glycaemic control from the "medical perspective" and to monitor the BG levels, because "doctors really rely on" nurses for this function (6.3.2.5). The literature, both international (Hewitt-Taylor 2004) and in HK (Chan 2002, Yam and Rossiter 2000), shows that nursing is steeped in a culture of deference to medicine. HK nurses are inclined to fulfil the tasks allocated or prescribed by doctors (Yam and Rossiter 2000), and this suggests that some reflection on nursing socialisation and paternalism is necessary (7.4 and 7.5).

7.2.1.1.2 Showing concern

This section discusses another major feature of the nurses' behaviour during the education process: concern. The nurses demonstrated their concern and support by providing ease of direct contact, making reminding telephone calls, inviting patients to decide the date of the next follow-up appointment and exhibiting culturally appropriate communication behaviour. This finding suggests that the nurses' practice matches the relational aspect of the superior person (*junzi*) through the realisation of "altruism in interpersonal transactions" (Tsai 2005, p163).

The nurses' perceptions show that they understood the importance of the nurse-patient relationship (6.3.2.1), and utilised it to sustain the patients in their adoption of the prescribed behaviour (6.3.2.5). These perceptions arose from the clinical experience that diabetes self-management is constrained by patient's environment. The nurses perceived that they should provide constant "support and love" (6.3.2.1) to help patients overcome the constraints.

The nurses perceived that attending education appointments was possibly a burden to patients, and therefore in the closing phase of the encounters, the nurses used the education strategy of "Negotiating sustainable behaviour" by inviting the patients to participate in deciding the date of the next appointment. Although the patients did not have a say on whether there should be another appointment, the patient interview data show that they highly appreciated the offer of choices, and attributed it to the fact that the nurses understood the constraints that patients faced (6.2.2.1.2). The offer of choice eased their attendance. These findings indicate that this strategy contributed to sustaining the follow-up behaviour, which lends support to the link between a sense of control (participating in the decision process) and behaviour accomplishment (keeping appointments) (Bandura 1997). The patients appreciated the caring attitude that the nurses had despite their great patient load (6.2.2.1.2). Research shows that nurses who are genuine and make themselves available contribute to a good relationship that forms the basis for a satisfactory encounter (Shattell 2004).

The nurses understood the Chinese cultural practice of face saving, that is feeling respected and not being belittled (Garenya and Hwang 1996), and perceived the importance of providing "an excuse" for patients when they failed to follow advice to make it easier for them to accept the nurses (6.3.2.5). This claim is evident from the interaction data. Avoiding direct confrontation is tacit communication behaviour to preserve face and avoid conflict in Chinese culture (Garenya and Hwang 1996). Related to face-saving are the virtues of self-sufficiency and not disclosing difficulties to strangers. The nurses believed that Chinese patients are reluctant to discuss psychosocial issues without first forming a relationship. The patients also expressed face-saving as being a concern (6.2.2.6). The nurses gave the patients space by starting the encounter with physiological issues such as BG control, to which both parties could relate. It has been found that UK nurses also select physiological issues for initial discussion (Baggens 2001). Although nurses should move beyond focusing mainly on BG issues, culturally sensitive nursing practice is suggested to be essential to avoid conflict and cultural clashes (Cheng 1997). The findings of this study add to the literature that culturally appropriate communication behaviour is essential for relationship-building with Chinese patients.

7.2.2 Nurse perceptions and experiences

This section discusses the perceptions and experiences of the nurses of working on the glycaemic control of their patients. The nurses' perceptions revealed factors that contribute to their initiation of encounters with BG matters, all of which derive from their experiences (see 6.3.2.7). The nurses' perceptions revealed contributing factors, again derived from their experiences, that caused the nurses to talk most of the time in the education process (see 6.3.2.6).

These perceptions and experiences show that the nurses were well aware of the influcence of Chinese culture on the communication behaviour of patients, but that they might not have been aware that their controlling behaviour is also influenced by Chinese culture. In addition, the over-protective parental role might be influenced by nursing socialisation (Chan and Cheng 1999) and medical paternalism (Cody 2003) in the acute-care culture, which favours nurses being in control of patients' condition, actively solving their problems and preventing death or hospitalisation (Holman and Lorig 2004).

It is important to note that both in the nurse-patient interaction (5.3.3.4.4) and nurse interviews (6.3.2.3), the nurses expressed their frustration about the limits of trying to persuade patients to comply, acknowledging that it is patients who are in control of the self-management behaviour upon leaving the education centre. Diabetes care is different from acute illness care in that diabetic patients provide over 95% of their own daily care (Funnel and Anderson 2003, Humphry et al 1997), and are therefore their own principle care-givers (Holman and Lorig 2004). Patients control their diabetes self-management and face its consequences (Anderson and Funnell 2000); it is dysfunctional for professionals to ask for compliance.

Anderson and Funnell (2000) assert that professionals must change their mindset to view their responsibility as being the quality of care and education provided and the responsibility of patients as being their own self-management. Many authors call for a deep reflection on the roles of educators and patients (Rogers et al 2005, Holman and Lorig 2004, Thorne et al 2004, Powers 2003, Nyatanga and Dann 2002). This is especially important for HK nurses, who might inadvertently take on an over-protective parental role that hinders their patients in developing themselves as self-managers.

7.2.3 Patient contributions

7.2.3.1 Expectations

This study indicates that the patients had two main expectations of the education process. First, they readily expected the nurses to take the lead in the education process, due to the influence of the acute-care culture and Chinese cultural practice.

The patients perceived diabetes education to be "in the area of treatment" or "medical care", which meant that as a treatment, it gave them no choice but to engage in the process "for the sake of getting well" (6.2.2.1.1). These perceptions may relate to previous experiences with the public healthcare system, with the patients carrying over the sick role expected of them in the acute-care setting (Nyatanga and Dann 2002, Shilling 2002), in which patients listen to health professionals and hope to obtain a cure in return (Funnell and Anderson 2004, Holman and Lorig 2004). A HK household survey in 2002 indicated that Western medicine is the mainstream healthcare orientation, and that the paternalistic view that "doctors know best" is pervasive (Leung et al 2005, p586). The fact that the centre in this study is located within an acute care hospital and the patients in the sampled programme were referred by doctors added weight to these perceptions.

A study amongst community nurses in Canada (Kristjanson and Chalmers 1990) finds that the care context (for example, a clinic or the patient's home) in which the nurse-patient interaction took place was critical in shaping its purpose and deciding who controlled the meeting, with the interactions that took place in clinics typically being controlled by nurses. A study with in-patients in Finland reports that patients accepted nurses' legitimate power in selecting topics for discussion because of their medical knowledge (Kettunen et al 2001).

The Chinese cultural practice of maintaining hierarchy and role relationships (Gao et al 1996) in communication behaviour contributed further to the readiness of the patients to submit to the nurses' control in the education process. Patients have a lower status than nurses in Chinese culture, and thus assume the cultural norm of "listening-centredness" (Gao et al 1996, p285). The lack of orientation of the encounters in the introductory phase of the education process might have further reinforced the patients' passivity (5.3.3.2).

The second expectation that the patients had of the education process arose directly from the Chinese cultural notion that "healers have a parent's heart". Although the patients perceived the knowledge differential between themselves and the nurses, they expected the nurses to have genuine concern for them (6.2.2.1.2). The findings suggest that the expectation of "a parent's heart" was in-grained. Health professionals are seen to have expert medical knowledge and as being obliged to love and protect their patients (Chen 2001). It has been noted that the single most important attribute of good nurses as described in Chinese writing between 1980 and 2000 is the ability "to treat patients as if they were their own family members" (Wong and Pang 2000, p15). This expectation of genuine concern is underpinned by the Confucian orientation of health professionals as benevolent (Fan and Li 2004, Tsai 2005).

7.2.3.2 Listening and submitting

This section discusses the patients' communication style during the education process, which was passive and submissive to the nurses' control.

The communication behaviour of the patients in this study is markedly different from that identified in two RIAS studies on diabetes consultations in the US (Hampson et al 1996) and the Netherlands (van Dulmen et al 1997). The HK patients engaged in as much as three times (30.8% of all utterances) the amount of positive talk as the nurses (11.2%). Amongst the RIAS variables that comprise positive talk (5.3.2.7), the majority of the exchanges belonged to "Agreement" (patients: 27.8% of all utterances, nurses: 7.7%). Hampson et al (1996) report an equal proportion (33%) of patients and doctors, but do not give a breakdown of the categories of positive talk, and thus a direct comparison is impossible. Nevertheless, the HK patients engaged frequently in agreement, and given the acute-care culture and Chinese culture (7.2.3.1), these findings are reasonable. The patients exhibited listening-centredness, and used frequent short agreeing statements to show their attentiveness and respect for the nurses (Gao et al 1996).

This study adds to the literature an interesting finding about the patients' blocking behaviour, namely, that was less direct. The patients often told a story about their experience of living with diabetes to contextualise the topics that they raised and to block those of the nurses (5.3.3.5). The patients were not always successful, largely because of the power differentials. In Chinese culture, a harmonious relationship is important, and is maintained by assuming the appropriate role relationship. Individuals of a lower position saying "no" (Wong Mukai 1999), talking back or asking questions might be regarded as disrupting the harmony (Gao et al 1996).

Culture determines the norms of communication such as what to say and when and how to say it (Gao et al 1996). Challenging a health professional about a prescribed regimen is not proper in Chinese culture, so instead patients might simply choose not to follow the regimen (Chen 2001). Viewed through the lens of Chinese culture, the findings that the nurses dominated the talk and the patients listened are norms of communication amongst the Chinese. Both parties behaved according to their respective role, and thus a harmonious relationship was maintained.

7.2.4 Patient perceptions and experiences

This section discusses how the patients perceived and experienced their submssion to the nurses to take lead in glycaemic control. Three areas of significance are identified for discussion.

7.2.4.1 A positive nurse-patient relationship

This sub-section discusses the observed nurse-patient dynamics, and how the patients perceived and experienced the nurse-patient relationship. Two pairs of roles between nurses and patients emerged from the interaction data (ESAS analysis 5.3.3.8). The first pair is that of the nurse as policewoman (detective and BG monitor) and the patient as suspected criminal. The second pair of roles is that of the nurse as nurturer (teacher and emotional supporter) and the patient as nurturee. It is evident from the interaction data that the first role pair gave rise to tension and the second to relief. The themes of control and concern feature prominently in the nurse-patient interaction data.

Of particular importance is that the two pairs of roles were often adopted within the same encounter. Although the dynamics of tension and relief appear to be dichotomous, they blended together when the patients perceived a positive relationship with their named nurse (6.2.2.2.6). An understanding of the pacification of the dichotomised dynamics within the nurse-patient relationship can be gleaned from the C-HCCQ data and perceptions of the patients.

In contrast to the findings of the ESAS (5.3.3) and the RIAS (5.3.2) that the nurses were controlling, the patients gave high ratings to support for patient autonomy amongst the nurses, as is indicated by the C-HCCQ data (6.2.1). However, there is no correlation between the C-HCCQ scores and the two patient outcomes of C-DES scores and HbA1c levels. These statistical findings are inconsistent with the assumptions of the empowerment paradigm that patients with high C-HCCQ scores will have a high level of diabetes-specific psychosocial self-efficacy and improved HbA1c levels (Anderson et al 1995). US patients who perceived their providers to be supportive of their autonomy presented better glycaemic control (Williams et al 2005a). Using the incongruent findings as a springboard for investigation (Patton, 2002), this writer explored this issue in the patient interviews.

The patients' perceptions of supportiveness of the nurses for patient autonomy were influenced by their low expectations about their control over diabetes education (7.2.2.1). In addition, the patients typically had control over the fixing of the next educational appointment, which contributed to the perception that the nurses were "democratic" and understood the burden of keeping appointments (6.2.2.1.1). Therefore, although the high C-HCCQ ratings are valid from the patient perspective, the complexity of the patients' perceptions and expectations of support for autonomy show the C-HCCQ to be insensitive in detecting what it purports to measure. This finding echoes the view that patient satisfaction scales are insensitive (Harrington et al 2004, Kruijver et al 2000b, Hulsman et al 1999), and underscores the benefits of method triangulation.

The patients' preceptions show that the prescribing and persuading behaviour of the nurses could cause defensive and negative feelings (6.2.2.4). However, these negative perceptions are balanced by another cluster of perceptions that are related to Chinese culture and the personal and professional attributes of the nurses.

The patients perceived (6.2.2.1) the nurses as teachers with expert knowledge and "a parent's heart" (6.2.2.1.1), whereas they perceived themselves to have limited knowledge to ask questions (6.2.2.3). Education levels did not make any difference in this perception.

The patients perceived their named nurses' controlling behaviour as a way of demonstrating genuine concern (6.2.2.1.1). "If you can't do what they want, they treat you as if you were their son, so they scold you and teach you again". This analogy illustrates that the patient perceived this controlling behaviour as an exhibition of genuine concern (6.2.2.1.2), which matches the Confucian orientation of health professionals (Fan and Li 2004, Tsai 2005). It has been observed that the perception of caring varies across cultural groups (Benner and Wrubel 1989).

In addition, the patients observed that the nurses despite working under great time pressure (6.2.2.2.3), worked for their benefits and convenience (6.2.2.1.2), and were persistent in making contact (for example, phone calls) and reiterating the importance of self-management. This behaviour was preceived as being caring and deserving "respect" (6.2.2.2.6). These findings highlight the importance of the nurses' personal attributes of caring and self-sacrifice (for example, willingly working overtime, flexibility in setting appointments) (6.2.2.1.2) in developing a positive nurse-patient relationship. The patients referred to the nurses as health professionals, "specialist[s] in diabetes education" with more expertise than doctors (6.2.2.2.1), and as understanding and relieving the burden of attending the education programme by offering a choice of appointments (6.2.2.1.2). These findings indicate that the patients valued the nurses' professional attributes, especially when they were delivered with a caring attitude (Chen 2001). The tension that arose from the nurses' controlling behaviour was therefore resolved cognitively by these perceptions and experiences. It is evident from the patient interview data that the patients perceived nurses' education behaviour to be acceptable and legitimate (6.2.2).

7.2.4.2 An attempt to follow prescribed behaviour

Importantly, in addition to expressing their agreement with the nurses' prescription for behaviour change during the education process (5.3.2.7), the patients expressed in interviews their intention to carry out these perscriptions, "I listen to her suggestions . . . I analyse them and choose to follow those that are suitable for me". The motivation to follow these prescriptions came mainly from two sources: the knowledge input of the nurses and the respect of the patients for the nurses. The patients perceived following the prescribed behaviour to be paying respect to the nurses in return for their genuine concern: "She tells you to do something, you follow; that is respect" (6.2.2.2.6). Although the patients expressed that they could not follow the prescriptions "fully" due to environmental contraints (see 7.2.4.3), the nurse-patient relationship at the very least contributed to motivate their intention. The relationship between nurses and patients therefore became reciprocal, with the nurses conveying their genuine concern and giving expert information and the patients showing respect by listening to and complying with the nurses' prescriptions as much as they could.

It has been suggested that central to any treatment encounter is the therapeutic relationship between the practitioner and the patient, which may help persuade patients to accept the practitioner's advice, because "the experience of being cared for . . . contributes to healing itself" (Mitchell and Cormack 1998, p37).

Although few studies explore the link between empowerment and the nurse-patient relationship, a grounded theory study in HK describes the process of developing empowerment in cancer patients (Mok et al 2004). In the study, the researchers defined empowerment to 12 cancer patients as being made stronger and more confident in controlling life events. The cancer patients described three social processes as contributing to this development: finding meaning in life, seeking mastery over cancer and acceptance of cancer. Mok et al report that these processes happen within a relational and a cultural context, and that the formation of a positive nurse-patient relationship depends on nurses' personal and professional abilities in demonstrating genuineness and delivering expert information. In addition, the patients felt empowered when they knew that the nurses were accessible and that there was two-way communication. In terms of the cultural context, Mok et al report that the patients were deeply influenced by the Chinese cultural beliefs of seeking harmony with the universe, which means letting nature take its course. Nurses who could develop a positive relationship with cancer patients and facilitate these three processes were regarded as being empowering.

In this study, the patients' perceptions show that they experiened a positive nurse-patient relationship because of the nurses' genuine concern (personal attributes) and delivery of expert information (professional attributes). The nurses made themselves available and accessible to the patients (6.2.2.1). The nurses' personal and professional attributes embody the Confucian moral ideal of health professionals to be benevolence (Fan and Li 2004). The development of a positive relationship motivated the patients to adopt the prescribed behaviour (6.2.2.2.6). The nurse-patient relationship, therefore, should be regarded along with communication skills and education strategies as a process characteristic (see Chapter One Operational Definitions) of the education process that influences learning and motivates changes.

This motivation deserves further investigation. It is suggested that although patients did not have much control over deciding what self-management behaviour to adopt, their experience of the genuine concern of expert nurses who worked for their benefits contributed to their perceptions of a sense of control over the prescribed behaviour. This suggestion follows the conceptualisation of existential control, whereby individuals impose meaning on events and thus accept them (Tones and Tilford 2001).

7.2.4.3 Outcomes achieved, education process and self-management

This sub-section discusses the patients' perceptions and experiences of the link between the outcomes achieved and the education process. These perceptions embody the experiences that the patients had of self-management.

The pre-post comparison of the perceived knowledge adequacy for self-management shows a significant increase after the education programme (5.4.1). Although the patients attributed this increase to the nurses' knowledge input (6.2.2.2), they also believed that knowledge alone is inadequate to deal with everyday self-management. As is demonstrated by the ESAS analysis (5.3.3.4), this input mainly comprised factual knowledge and the development of technical self-efficacy. Previous studies show that patients suffer difficulties in making the connection between self-management knowledge and its application in daily life (Poskiparta et al 1998). The patients in this study perceived that to manage their condition well they required other abilities in addition to knowledge. An analysis of the identified abilities (6.2.2.2.4) shows that they are diabetes-specific psychosocial self-efficacy and competency in self-regulatory skills (Shiu et al 2003, Tones and Tilford 2001, Anderson et al 2000). The patients experienced limited input in these areas, which is confirmed by the ESAS analysis (5.3.3.6). Indeed, the pre-post comparison of the diabetes-specific psychosocial self-efficacy (C-DES scores) shows no significant change (5.4.2).

However, the patients did express that it was up to them to take the responsibility for developing these identified abilities after the knowledge input had been made (6.2.2.2.4). This perception perhaps arose from the Chinese cultural practice of face saving, which favours self-sufficiency (Garenya and Hwang 1996). It is evident from the interview data that although some of the patients developed these abilities themselves, they typically experienced difficulties in mastering them.

The pre-post comparison of HbA1c levels shows a significant improvement (5.4.3), which is comparable to that reported in the UKPDS (1998). This finding is consistent with a survey conducted at the same education centre (Wong 2001). Of importance is that the patients in this study perceived the outcomes achieved not simply a simplistic formula of gaining knowledge, developing abilities, compliance and achieving desirable glycaemic control.

An examination of the influences on glycaemic control that the patients identified illustrates the interplay of the various features of their total life context, which can be grouped into two main dimensions: internal and external environment (see 6.2.2.2.5). Adequate diabetes self-management knowledge is only one aspect of the internal environment. Even with adequate knowledge and strong determination to adopt desirable self-management behaviour, the patients were unable to achieve the desired glycaemic control if their diabetes reached a more advanced stage (for example, 5SOY), or if family and work demands took precedence over self-management (for example, 5YSY).

It is evident from the patient interview data (6.2.2.2 and 6.2.2.4) that self-management was experienced as only one component of the patients' total life context, and that there were many needs, physical, psychosocial and economic, competing for their attention. These findings give evidence of the limitation of adopting a preventive model of diabetes education, which assumes that knowledge leads to attitude and behaviour change (Tones and Tilford 2001). Research repeatedly shows that many diabetic patients do not comply with the treatment regimen despite good diabetes knowledge (Cramer, 2004). A study of HK diabetic patients finds that those who experienced heavy work and family demands were often non compliant with the prescribed behaviour (Shiu 2004, Shiu and Wong 2002).

Self-management as part of a total life context is an emerging theme in the literature. The work of Thorne and Paterson (2001) on diabetic patients who are nominated by doctors as experts in self-management shows that learning and the application of self-management take place in the life context of patients. The research also highlights the importance of professional support in the attainment of euglycaemia by including life contexts into provider-patient interaction (Shiu 2004, Shiu and Wong 2002, Weiss and Hutchinson 2000, Ritholz and Jacobson 1998).

The patients in this study preferred more specific and positive feedback and two-way communication (6.2.2.2.2 and 6.2.2.5), but experienced time pressure as a hindrance. They perceived that the heavy patient load rendered nurses unable to have an in-depth understanding of "patients' personalities" and "other demands in life". The patients perceived this understanding as fundamental to individualised feedback and teaching. Moreover, the patients' perceptions (6.2.2.5) show that they preferred experiential learning activities.

This study describes the patients' perceptions of the link between the education process, total life context and outcomes achieved. These findings have implications for a paradigm shift from compliance to empowerment. Such a shift does not abandon educating for diabetes knowledge but goes beyond it (Anderson and Funnell 2005b, Tones and Green 2004). Self-empowerment in diabetes education aims to enhance knowledge and cooperation by enabling patients to overcome personal, social and environmental barriers.

7.2.5 A summary

The education process in this study revolved around the overarching themes of control and concern, which occurred within a relational context characterised by Chinese culture and the acute-care culture. A summary of the findings that this study adds to the literature are given in Appendix 13.

7.3 Emprically revised framework

The theoretical framework, the Tripartite Conceptual Analysis of Theoretical Models of Diabetes Education (Figure 4), as the descriptive theory that guides this study is a synthesis of two frameworks: a tripartite conceptual analysis of the theoretical models of health education (Tones and Tilford 2001) and a conceptual framework of the basic essence of an education encounter. The results of this study show the theoretical framework to be powerful in unpacking the education process. The function of the framework in this study is to explicate theory as a "scaffold" for qualitative research (Morse and Mitcham 2002, p10).

> "The boundaries of the concept may be known; thereby focusing sampling and data collection. However, the internal structures of the concept require further investigation . . . These are inductively explored, with what is already known drawn as a comparative template over the emerging scheme. Thus, previous work, while focusing inquiry, still enables the internal structure of the concept to be malleable and emerge . . . Once the work is completed, the scaffold is dismantled, and the theory stands on its own".

Based on the findings, this writer has revised some of the conceptual elements of the framework to describe the nurse-patient interaction process of diabetes education as follows.

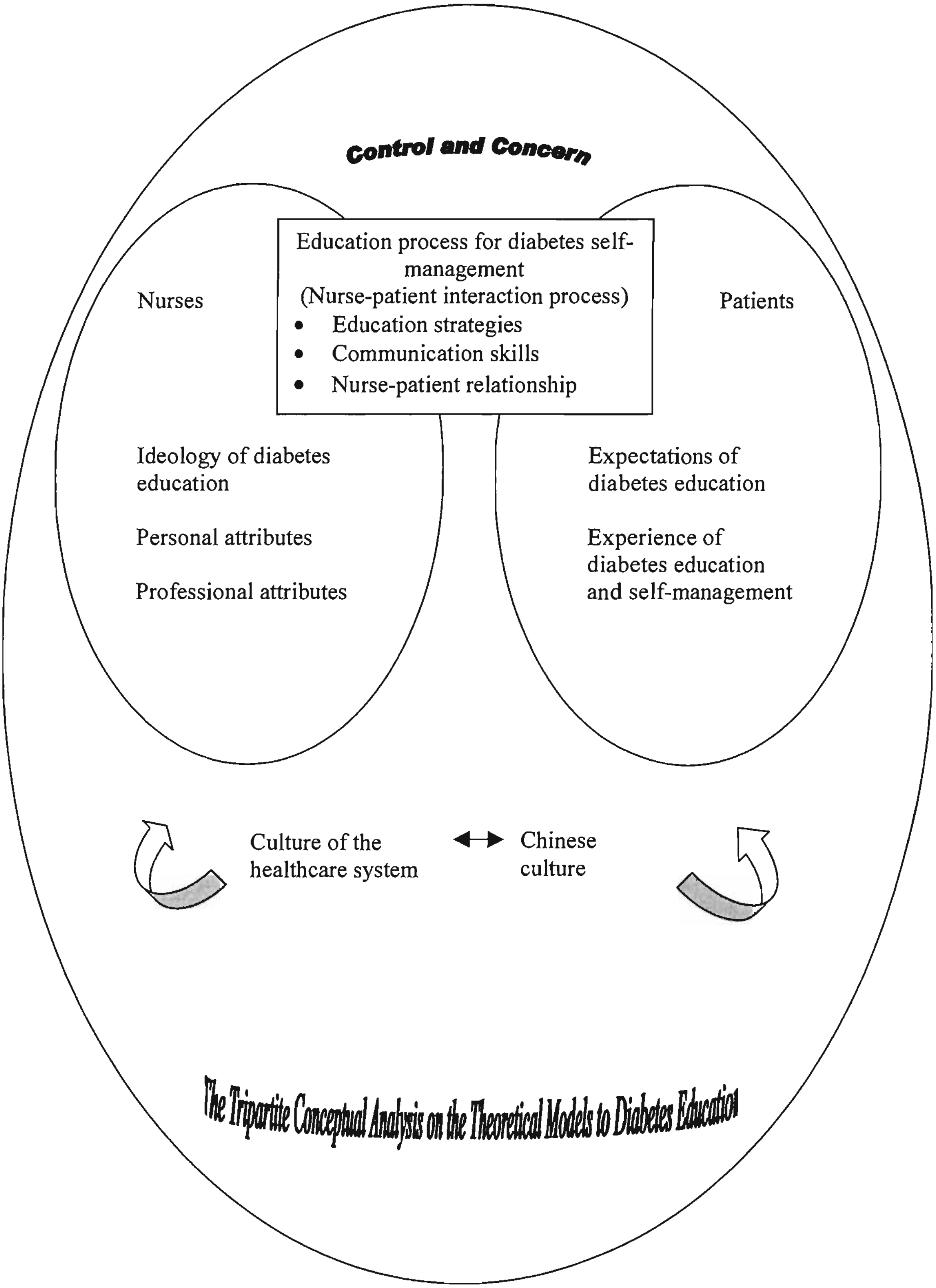
> The basic essence of an education encounter in diabetes education between diabetes nurses and patients in the nurse-led diabetes centre in HK involves three major process characteristics: the education strategies that are employed by the nurses, the communication skills of both parties and the development of the nurse-patient relationship. These process characteristics are influenced by the dynamics between both parties. Nurses bring to the encounter their ideology of diabetes education and their personal and professional attributes. Patients bring to the encounter their expectations of diabetes education and their experience of diabetes education and self-management within a total life context. The dynamics are, in turn, influenced by the interplay of two dominant

> cultures: Chinese culture and the culture of the healthcare system, that is the acute-care culture. The education process revolves around two overarching themes – control and concern, which are co-created by nurses and patients.

Figure 8 shows the empirically revised framework figuratively. The implications of this framework for further research are discussed in Section 7.6.

Figure 8

An empirically revised framework



7.4 Three key issues

Paradigm shifts cannot be imposed from outside the discipline, but instead happen when the scientific community develops an awareness that theories or assumptions that they have held to guide practice in the past are no longer adequate to explain, predict or guide current practice (Anderson and Funnell 2005b, Wills 2002, Kuhn 1996). Therefore it is considered important to gain insight from critiquing the use of the current model of diabetes education using emprical findings to tease out the challenges for consideration. Three key issues of significance in making a paradigm shift from the preventive to the self-empowerment model are identified for discussion.

7.4.1 Consequences of using the preventive model

A cursory consideration of the patient outcome data in this study might suggest that using the preventive model improves the perceived adequacy of knowledge for self-management and the HbA1c levels of patients, although without effecting any changes in their diabetes-specific psychosocial self-efficacy. These patient outcomes match the assumption of the preventive model that knowledge gain leads to lifestyle changes and in turn improves physiological outcomes. Considering these outcome data alone might give the impression that the preventive model of diabetes education is adequate for guiding current practice.

Paradoxically, the patients' perceptions show that there is no direct linkage between knowledge and glycaemic control (6.2.2). Their perceptions show that self-management is only a component of the total life context, in which many other demands compete for their attention (6.2.2.2 and 6.2.2.4).

The nurses used plenty of education strategies of "Persuasive communication" with appeals to fear and "Prescribing behaviour change" (5.3) to work at their patients' glycaemic control. It has been suggested that these tactics at best bring controlled motivation (Williams et al 2005a, Williams et al 2004), which in turn brings forth behaviour change motivated by pressure from interpersonal or intrapsychic forces. Compared to autonomous motivation, which brings forth behaviour change motivated by a sense of volition and personal endorsement, adherence to behaviour change brought forth by controlled motivation is short lived. In this study, the nurses (5.3.3.4.4 and 6.3.2.3) and patients (6.2.2.4) were both aware of the limitations of persuasion and compliance.

However, the patients' intention to follow the nurses' prescriptions was more complex than controlled motivation. To respect the genuine concern that the nurses showed them, the patients tried to adhere as much as possible to the prescribed behaviour, which was influenced by the interplay between Chinese culture, the acute-care culture and the exhibition of genuine concern by the nurses (7.2.4). Of note is that despite their intention to follow the prescriptions, many of the patients could not follow fully. Some developed guilt about not being able to follow them, and some requested a more frequent dose of threatening messages to reinforce their motivation (6.2.2.2). The paternalistic approach of the nurses limited their ability to facilitate autonomous motivation amongst the patients (Williams et al 2005a, Williams et al 2004).

Diabetes is a self-managed illness (WHO 2003, 1998d) and this study shows that the education process of the preventive model focuses mainly on medical management and technical self-efficacy, but this alone is inadequate in overcoming the psychosocial constraints of diabetes self-management (Anderson and Funnell 2005a, Tones and Green 2004).

One could argue that singling out lifestyle issues for attention is the strength of the preventive model. However, several decades of research supports that the compliance and glycaemic control brought forth by this model are either short lived or ineffective (Cramer 2004). A meta-analysis of RCTs from 1980 to 1999 on the effect of self-management education programmes on glycaemic control shows that an improvement in HbA1c levels of 0.8 percentage points in experimental patients declined to 0.3 when reassessment was conducted one to three months after the education programmes had finished (Norris et al 2002). Due to the design of the current study, the sustainability of improvement in HbA1c levels over time could not be discerned.

However, the patients did identify the essential abilities for self-management (6.2.2). An analysis of these abilities shows that they are diabetes-specific psychosocial skills and self-regulatory skills (Shiu et al 2003, Tones and Tilford 2001, Anderson et al 2000). However, the patients were not well equipped with these skills and found mastering them difficult. In light of the Confucian orientation, health professionals who do not cultivate their patients' autonomy can be regarded as failing to fulfil their role-specified responsibilities (Tsai 2001). In the West, it has been argued that education programmes that pay inadequate attention to the development of psychosocial self-efficacy amongst patients are unethical (Redman 2005, Holman and Lorig 2004).

"When health problems are chronic, the acute-care practice model doesn't work" (WHO 2003, p30). It has further been argued that the preventive model as the acute-care model is ineffective and inefficient for diabetes self-management (Anderson and Funnell 2005b, Holman and Lorig 2004, Vinicor 2004). Lorig and her colleagues (Holman and Lorig 2004, Lorig 2003, Bodenheimer et al 2002) have argued repeatedly that the healthcare system is at fault because it allows its two key health "producers", patients and professionals, to be inadequately trained about effective means for successful self-management.

7.4.2 Chinese culture, the preventive model and equal partnership

A particular concern highlighted by this study is whether the Chinese cultural norms of respecting health professionals as caring parents might render the preventive model of diabetes education adequate to guide practice in Chinese populations. Two issues are raised for consideration: consequences and acceptance of using the preventive model. The former has been discussed (Section 7.4.1) and an examination of the latter from the patient perspective indicates that patients do accept such a model, as is shown by the perceptions that education is part of treatment and, as a treatment there should be no choice as to whether to engage in it or not (6.2.2.1), or as to whether to submit to the nurses' controlling behaviour.

However, perceptions are limited by experience (Patton 2002, Silverman 2000). As the preventive model of diabetes education was the model in operation, the patients had no experience of an education process that used the self-empowerment model. However, it is notable that the patients in the interviews welcomed the concept of equal partnership.

Empowerment as a paradigm of health promotion (Tones and Green 2004) and nursing (Kendall 1998) evolved and was developed in the West. Although studies have reported the perceptions of some HK cancer patients as to what constitutes empowerment (Mok et al 2004, Mok and Martinson 2000), the extent to which self-empowerment as a health education model has taken root in HK has never been investigated. Therefore, the acceptance of an equal partnership, which is a central feature of the nurse-patient interaction process in the self-empowerment model (Holman and Lorig 2004, Tones and Green 2004, Powers 2003, Nyatanga and Dann 2002, Paterson 2001), is examined from patient and nurse perspectives.

The patients were initially divided in their opinions (6.2.2.6), with half perceiving equal partnership as being inapplicable in a Chinese context because: "for Chinese . . . respect brings fear, fear brings the implementation of orders. . . . treat[ing] them [nurses] as peers doesn't work". This perception reflects the Chinese virtue of submission, humility and respecting authority (Chen 2001, Cheng 1997, Bond 1996).

Interestingly, when this writer paraphased the notion of equal partnership using two conceptual elements of which it is composed: mutual respect in the encounter and two-way communication between both parties to deal with self-management issues, these patients responded positively, and stated that such an approach should work amongst HK Chinese people and would help them to discuss their condition with their named nurse. It is evident from their expressions that it was the terminology of equal partnership that the patients rejected, rather then the concept itself.

The other half of the patients readily agreed with the applicability of the Western idea of equal partnership in HK. They perceived that although doctors and nurses have their "specific knowledge", patients also have "life experience" that allows them to have a meaningful discussion, which might bring forth better metabolic control. Patients who had not had a formal education had the same perception, which suggests that education level is not a barrier to the acceptance of equal partnership.

However, although these patients welcomed the implementation of equal partnership, they were concerned about time constraints and the need for relationship building in developing an equal partnership, because "Chinese people may not express their negative emotion in front of strangers". This is related to face saving (Garenya and Hwang 1996).

The nurses' perceptions of the applicability of equal partnership revealed some ambivalence (6.3.2.4). On the one hand the nurses unanimously appreciated the use of this concept and cited examples to show that being elderly or illiterated was not a barrier. On the other hand, they identified that this concept had been used sparingly with selected patients due to three interwoven issues. The first issue is the same as that identified by the patients, the time constraints and the need for lengthy interaction to develop patients to take up the role of equal partners. The second issue comes from the Chinese cultural practice of respecting healthcare authority: the nurses perceived that most patients listened without discussing (6.3.2.6). The third issue is related to ensuring patient survival. Some patients had a "couldn't careless" attitude to their unstable glycaemic levels and the nurses perceived that these patients should be given "directive" about their self-management behaviour to save their lives. It is evident that the nurses felt a strong responsibility for the self-management and wellbeing of their patients. These findings again hightlight the influences of paternalism and benevolence on the nurses' perceptions.

Although Chinese nurses' perceptions of equal partnership have never been explored, the findings of this study show that there is some similarity with the perceptions of UK nurses. Diabetes nurses in the UK are reported to perceive themselves to be accountable for their patients' self-management behaviour (Pill et al 1999) to the extent that it is one of the reasons why they reverted back to a biomedical approach to diabetes education after successful training to adopt a patient-centred approach, that is, one that involves patients in decision-making about their care and encourages them to take responsibility (Pill et al 1998). Nurses in the UK are reported to be particularly unwilling to allow patients with poor glycaemic levels to decide what to do (Doherty et al 2000, Pill et al 1999).

Again, the finding of time pressure as a constraint on diabetes education is consistent in the literature (Paterson 2001, Doherty et al 2000, Woodcock et al 1999). Time constraints are also a concern in the shift to an empowerment paradigm, because of the demand for healthcare cost containment and the demonstration of measurable health outcomes (Anderson and Funnell 2005b, Gage et al 2004, Hewitt-Taylor 2004, WHO 2002). Time pressure has implications for reorienting the organisation of services.

7.4.3 What bound the nurses to the preventive model

The nurses in this study, despite having a dualistic approach to diabetes education, practiced the preventive model alone. Three interwoven issues – ideological, technical and contextual contribute to this phenomenon.

7.4.3.1 Ideological

The first issue is ideological. The preventive and self-empowerment models of diabetes education are incompatible with each other, and arise from opposing paradigms (Anderson and Funnell 2005b, Holman and Lorig 2004, Tones and Green 2004), and therefore the nurses could only adhere to one model to avoid being torn between two paradigms (Whitehead 2003b). The crux of the problem is why the nurses held on to the preventive model.

It is of note that the nurses placed particular value on the findings of RCTs (for example, UKPDS 1998) (6.3.2.1), whereas they regarded the rationale for an empowerment approach as arising from reflection on clinical experience with diabetic patients. The literature, both international (Hewitt-Taylor 2004) and in HK (Chan 2002, Yam and Rossiter 2000), shows that nursing is steeped in a culture of deference to medicine. HK nurses perceive themselves to be accustomed to following guidelines and protocols (Yam and Rossiter 2000). Furthermore, medicine's role as a social regulator of behaviour has been justified by scientific research and findings (Powers 2003), and health professionals often devalue the knowledge and experience of diabetic patients in favour of objective laboratory results (Paterson 2001). Nurses tend to favour knowledge developed from empirical processes and might exclude "tacit, implied or implicate knowledge" grounded within one's practice (Whitehead 2005, p143).

It is inferred that the nurses in this study were influenced by the emphasis that they placed on physiological research conducted by medical doctors, by the tacit Confucian notion of health professionals as caring parents, and by the intertwining issues of technicalities and context, all of which caused them to hold on to the preventive model and to display the controlling behaviour of an over-protective parent.

7.4.3.2 Technical

The second issue is technical. As evidenced in the ESAS analysis (5.3.3.1) and the nurse interview data (6.3.2.3), the nurses had an inadequate mastery of empowering education strategies. The experience of difficulties in facilitating empowerment might further hinder the nurses' enthusiasm in making a paradigm shift. The nurses' perceptions of equal partnership being workable with selected patients lend support to this inference. It has been reported that doctors and nurses feel secure in their role of expert teacher, but become insecure when their role is shifted to that of facilitator (Adolfsson et al 2004).

Although a quick fix for this problem is the development of the mastery, research repeatedly shows that nurses who have gone through training programmes on empowerment or patient-centred approach to diabetes education (Adolfsson et al 2004, Cooper et al 2003a, Doherty et al 2000, Pill et al 1999, Woodcock et al 1999), despite initial success revert back to their old practice after a period of one to two years. Two main reasons are given by nurses for the non-sustainability of trained behaviour: the need to be accountable for patients' self-management and the non-conducive clinical environment (Adolfsson et al 2004, Pill et al 1999). This suggests that trained nurses are constrained by their internal (accountability) and external (clinic) environment (7.5).

7.4.3.3 Contextual

The third issue is contextual, and involves several factors: the increasing pressure on nurses to be more efficient, the patient profile, nursing socialisation in the acute-care culture and Chinese cultural practice.

As is demonstrated by the four sub-units of analysis, the nurses worked with a heavy patient load, which created time constraints. A heavy patient load is a reality for most diabetes nurses in HK, where 50 nurses provide education services to 180,000 diabetic patients who attend Hospital Authority facilities for treatment. Many of these patients are elders or illiterate (Lam et al 2000). The literature suggests that most healthcare organisations arrange the workload of practitioners to an extent that limits the time available for interaction with patients (Holman and Lorig 2004), which is a particularly significant barrier to the adoption of empowerment (Paterson 2001). It is argued that this type of medical industrial model is dehumanising the healthcare system (Anderson and Funnell 2005b). This writer suggests that the heavy patient load contributed to bind the nurses to the preventive model. This has implications for a need for health policy development on nurse-patient ratios and the reorientation of the healthcare system to be more conducive to relationship-oriented care processes (Vinicor 2004, Power 2003, Lorig 2003).

As is addressed in Section 7.2.2, the nurses perceived a strong responsibility for their patients' self-management behaviour and wellbeing. These perceptions may be in part due to nursing socialisation. HK nursing education was imported from Britain in 1893, with UK nurses working as tutors and matrons in HK (Paterson 1987). The influence of the British Nightingale tradition of nurse training on nursing socialisation in HK has been reviewed (Chan and Cheng 1999), and is found to mould HK nurses to obey instructions from senior nurses and doctors. This socialisation permeates to the work setting and is reinforced by a strict hierarchical structure that places doctors at the head of services.

The underlying values of the British Nightingale tradition represent a biomedical paradigm of the public healthcare system designed early in the 19th century to cope with acute disease (Holman and Lorig 2004, Vinicor 2004). UK nurses are socialised to adopt paternalism (Cody 2003, Coulter 1999) and an individualistic approach to health promotion (Latter 1998, Ashton 1990), as are HK nurses (Chan 2002).

Although nursing education in HK has undergone some evolution with degree education replacing hospital based training in 2003, the majority of nursing leaders to date were trained in the Nightingale tradition. Novice nurses in HK define their professional role identity and develop their values of nursing by observing their senior colleagues (Wong and Lee 2000), and thus values and norms are passed from one generation to another.

The nurses in this study had gone through basic nursing training in the Nightingale tradition, had attended professional programmes in diabetes education in the 1990s, and were currently working in a setting where acute-care was the dominant culture (Harvard Report, 1999). Day et al (2003) maintain that the curricula of professional programmes in diabetes education pay insufficient attention to the empowerment model. It has been suggested that the worldview learned from professional education exerts a strong influence on practice (Anderson and Funnell 2005b, Holman and Lorig 2004), and it is therefore suggested that in this study the nurses' professional socialisation partly explained why the ideology of the preventive model took precedence. This demonstrates that adequate methods for socialising the new generation of nurses and re-socialising experienced nurses need to be identified.

The Chinese cultural practice of maintaining role relationships and face saving, with its root in Confucian thought, is in-grained (Gao et al 1996, Garenya and Hwang 1996). The nurses' perceptions show that they were well aware of this influence on nurse-patient interaction, but they might have been less aware of that their controlling behaviour in the education process might be due to a combination of their socialisation in the acute-care culture and Chinese cultural norms.

It is suggested that the values of the nurses and their need to and fulfil cultural norms further bound them to the preventive model. While the readiness of Chinese patients for self-empowerment is an area that deserves investigation, also deserving of attention is the readiness of HK nurses to relinquish the over-protective parental role. Moreover, Chinese nurses are submissive to authority (Chan 2002), and might perceive negotiating with people in power, such as doctors and the Hospital Authority, to achieve a conducive environment for empowerment to be culturally inappropriate.

To conclude, it is suggested that the nurses were constrained by their internal and external environment, and thus were bound to the preventive model of diabetes education. The internal environment includes their ideology of diabetes education, their strong sense of accountability for the self-management and wellbeing of their patients, their values of being a caring parent and their inadequate mastery of the empowering process. The external environment includes the acute-care culture of the healthcare system, Chinese culture, nursing socialisation, the heavy patient load and patient profiles. Therefore, putting the blame on nurses for not making the paradigm shift will commit the crime of victim blaming by ignoring the environmental constraints that the nurses face (Tones and Green 2004). This suggests that nurses need to be empowered themselves to overcome these environmental constraints, using the empowering strategies set out in the Ottawa Charter (WHO 1986).

7.5 Recommendations

The findings suggest that the call for a paradigm shift towards empowerment is not superfluous. Paradigm shifts should be regarded as a normal development in the scientific community (Kuhn 1996), because no paradigm is perfect or eternal. Making a paradigm shift to empowerment in nursing practice in health or diabetes education will be difficult, as is demonstrated by the literature (Chapter Two and Three) and the issues that bound the nurses in this study to the preventive model. These issues are interwoven, and thus actions should be undertaken on a number of fronts to reap synergetic benefits. The recommendations for action are given in the following.

7.5.1 Developing professional capacity

7.5.1.1 Critical consciousness raising

The findings show that the nurses were aware of the limitations of the preventive model (5.3.3.4.4 and 6.3.2.3), and that they were caring (6.2.2.2.6) and committed to helping patients to live a normal and happy life (6.3.2.1). These findings suggest that the nurses' professional and personal attributes (7.2.2.3) give them great potential to translate self-empowerment from an espoused theory to one that is used in practice. Paradigm shifts happen when a scientific community, in this case the nursing discipline, recognises that the new paradigm surpasses the old in guiding the discipline to break new grounds (Wills 2002, Kuhn 1996).

The main recommendation of this study to facilitate such a shift is to challenge nurses to reflect on the values, assumptions, cultural norms and roles upon which they base their practice. Also deserving of reflection is the adequacy of the sources of knowledge that inform education practice. It is also important for nurses to identify the barriers that hinder them from delivering the best possible diabetes education. Such reflection would be in line with the conceptualisation of the primacy of caring in nursing practice (Benner and Wrubel 1989) and Confucius' teaching of becoming a superior person (*junzi*) (Tsai 2005, Legge 1963, 1971).

Benner and Wrubel (1989, p369) maintain that when "the demands of the situation", or the environment, prevent nurses from "perform[ing] with a maxium level of skill and compassion, the stresses of nursing become intolerable".

Confucianism holds that healthcare is the art of benevolence (*ren*), and that health professionals should practise *ren* in parallel to their quest to become a *junzi* (Fan and Li 2004, Legge 1971). Confucius suggests that the exercise of autonomy is never context free (Tsai 2005), and therefore wisdom about how to maintain a balance between autonomy and relationships should be cultivated (Tsai 2001, Legge 1963). To become a superior person, human beings should seek self-activation in difficultes (Tsai 2005, Legge 1971). This is examplified in The Book of Change, in which Confucious says: "Heaven, in its motion, gives the idea of strength; the *junzi*, in accordance with this, nerves himself to ceaseless activity" (Legge 1963, p267). An updated translation of this verse might be: "The cosmos, in its healthy motion, witnesses strength; the *junzi*, in accordance with this, challenges oneself to ceaseless self-empowerment."

In short, it is suggested that nurses should be empowered by means of "critical consciousness raising" (Tones and Green 2004, Freire 1983), so that they may identify what hold them back from providing the best possible care. HK nursing academics should initiate the reflection in continuing education and professional programmes. This foremost action that should be taken is to tackle the causes of the internal and external environmental constraints that bind nurses to the preventive model. When critical consciousness is raised, nurses will consider action to change their practice and the environment.

7.5.1.2 Professional development

The findings show that the nurses had an inadequate mastery of empowering education strategies, and therefore the next recommendation is the provision of professional education to develop the nurses' professional capacity. The primary focus of the education process should move beyond the development of technical self-efficacy amongst patients to include the facilitation of psychosocial self-efficacy (Anderson and Funnell 2005b). An education process based on the self-empowerment model (Tones and Tilford 2001) as described in Chapter Two (2.4.3) could provide the basis for the curriculum. This recommendation aims to tackle the internal environmental constraints that bind nurses to the preventive model. It is suggested that, having gone through critical consciousness raising, nurses may regard the mastery of the empowering process to be the primary learning issues, and thus the behaviour changes that nurses make as a result of the professional education may become more sustainable.

It is recommended that the existing professional training programmes on diabetes education be revised to incorporate theoretical models and related education strategies, in addition to including elements of critical reflection. Furthermore, the development of the nurse-patient relationship in a Chinese context should be explored and emphasised. It is also recommended that undergratuate nursing programmes should incorporate these components in the curriculum.

7.5.1.3 Advancing culturally appropriate and empowering practice

Although it is suggested that the purpose of diabetes education should be readjusted to the empowerment of patients as their own managers (Lorig 2003, Holman and Lorig 2004), the nursing practice should be culturally appropriate (Cheng 1997). In this study, the nurses showed their sensitivity of Chinese culture by emphasising the development of the nurse-patient relationship and helping the patients to maintain face. However, in the Confucian orientation, there is room for improvement.

This writer makes two major recommendations about the facilitation of the education process in a culturally appropriate and empowering manner, both of which target the internal environmental constraints that bind nurses to the preventive model.

The first recommendation is related to the three-phase structure of the education process. The first encounter should be about the development of appropriate role relationships, as "Chinese communication is relation-oriented" (Gao et al 1996, p283). In the introductory phase, nurses should orientate patients as to the nature of education process, which is different from treatment for an acute illness. Patients are to be facilitated as their own managers of diabetes care. HK nurses should use culturally appropriate terms to explain the concept of equal partnership in the orientation phase. For example, they might tell the patient:

> "This is a meeting between two experts: the nurse as an expert in diabetes education and the patient as an expert in his or her life context. Both experts contribute ideas to discuss

self-management issues through two-way communication and with mutual respect."

In the working phase, patient assessment should include the evaluation of felt needs. Confucius is a role model here, listening and learning as he did from his students, expecting humility but not obedience (Li 2003). Given the Chinese cultural practice of role relationships and face saving, nurses should take time to develop a connected relationship with patients (Morse 1991b) using culturally sensitive communication behaviour (Cheng 1997). Once the relationship is established, nurses should assess psychosocial constraints by listening to patients' stories, as the findings of this study indicate that the patients contextualised their self-management experience within a total life context. Nurses should engage patients to identify their own problems, constraints, resources and realistic goals and to experiment with methods for achieving glycaemic control. Experiential learning and counselling education strategies are recommended. This does not mean the abandonment of basic diabetes knowledge (Tones and Green 2004), rather, it means moving beyond the mere provision of information to the development of both diabetes-specific technical and psychosocial self-efficacy (Anderson and Funnell 2005b). Again, nurses' genuine concern is an asset that could help motivate patients to change.

Nurses should restrain themselves from playing the controlling parental role. Although this reflects the cultural norm of "healers have a parent's heart", over-protectiveness or paternalism restricts patients from gaining "maturity" (Cody 2003, Chin 2002, Coulter 1999). On becoming a *junzi*, nurses may seek to cultivate patients' autonomy while protecting their wellbeing (Tsai 2001). As Chinese cultural norms may influence patients to respect and fear nurses (6.2.2.6), nurses should grasp hold of opportunities to overcome the negative aspects of fear by actively showing concern and understanding. Some patients may not be ready to assume the level of responsibility of a self-manager, but genuine concern and culturally appropriate communication on the part of nurses may guide patients to work towards this direction gradually. It is suggested that nurses could model their teaching style on that of Confucius by activating patients with appropriate questions (Li 2003).

In the termination phase of the education process, nurses should consolidate the learning of patients by facilitating them to revisit their learning issues and achievements. This is a golden opportunity to strengthen self-efficacy beliefs (Chau et al 2005, Bandura 1997). In short, nurses should take on the parental role of creating supportive environments in which to develop patients' autonomy and independence progressively, in line with the Confucian orientation.

The second recommendation for advancing culturally appropriate and empowering practice is the facilitation of the four major competences of self-management (Curtin et al 2005, Fisher et al

2005, Sigurdardottir 2005, Paterson et al 1998, Corbin and Strauss 1988), as summarised in Section 7.2.1.2. Equal attention should be allocated to developing each of these competences (Holman and Lorig 2004, Bodenheimer et al 2002) to facilitate diabetes-specific technical and pyschosocial self-efficacy skills. This recommendation echoes the concept of expert patients that has recently been developed in the UK (Fox 2005), which advocates the development of patients with chronic illness as producers of health. The empowering strategies of the self-empowerment model (Tones and Tilford 2001) as described in Chapter Two (2.4.3) provide nurses with a roadmap for the process of facilitation.

7.5.2 Creating supportive environments

7.5.2.1 Strengthening community action to reorient health services

To empower nurses to make a paradigm shift to empowerment, in addition to enhancing their professional capacity, their environment should be made conducive to health promotion (Tones and Green 2004). Two of the main constraints that arise from the nurses' external environment are directly related to the nature of the healthcare system: time pressure and the acute-care culture.

The finding of time pressure as a constraint to diabetes education is consistent in the literature (Paterson 2001, Doherty et al 2000, Woodcock et al 1999). Sufficient time with nurses is an indicator of quality in nurse-client interaction (Macleod Clark and Maben 1999). After critical consciousness raising, it is suggested that nurses take community action in a culturally appropriate manner. It is recommended that nurses in HK network together to take community action to press the Hospital Authority to establish a policy on an appropriate nurse to patient ratio that would allow the nurturing of relationship-oriented care processes (Vinicor 2004, Power 2003, Lorig 2003). The nurse community could lobby legislative councillors who represent nursing in the public policy arena to voice the benefits of spending quality time with patients. Moreover, the nurse community could form an alliance with other health disciplines and patient organisations (Barr et al 2003), such as support groups for diabetic patients, to press for community action. Nurses could adopt a caring parental role to advocate on behalf of patients for supportive environments, in line with the autonomous and relational aspects of Confucian healthcare practice (Tsai 2001, Legge 1971).

The WHO (2003, 1998d) maintains that the main emphasis of the healthcare system should be empowering people who are affected by chronic illnesses for successful self-management. Public health researchers caution that using the acute-care model for chronic illness management "is neither effective nor efficient" (Holman and Lorig 2004, p239). The epidemiological transition from acute to chronic illness challenges the healthcare system, and offers a window of opportunity for reorienting the system using the WHO ideology of health promotion (Sindall 2001). It is time for the nursing discipline to rise to this challenge by forming alliances (Barr et al 2003) with other health professional bodies and the patient community.

7.6 Implications for further research

7.6.1 Directions

Although the research question of this study has been answered, more questions for further research are identified, which can be grouped into eight major areas.

First, the dynamics of the nurse-patient relationship that influence the perceptions of support and the adoption of diabetes self-mangement amongst Chinese patients have never been documented. Nursing texts in the past five decades have referred to the nurse-patient relationship as the foundation of nursing care, but there is a lack of theory to organise practice and research (Hagerty and Patusky 2003). Although the findings must be regarded as preliminary, they suggest that there are four major elements that influence the development of the nurse-patient relationship: Chinese culture, the role expectations of patients and nurses, the organisation of nursing care delivery (primary nursing) and the personal and professional attributes of nurses. These elements may offer an initial conceptual framework with which to explore the process and conceptual elements of the nurse-patient relationship. In addition, Morse (1991b) describes patterns of relating as context-dependent. It is therefore meaningful to undertake cross-cultural studies to compare these patterns in the Chinese and Western cultural contexts. HK society is bicultural and both Chinese and Western culture are practised, although the former is the dominant. It would also be interesting to compare these patterns in Chinese communities in HK, mainland China and Western countries, such as the UK and US.

Second, this study shows that a positive nurse-patient relationship can motivate patients' intention to make changes and follow nurses' prescriptions. This type of motivation goes beyond controlled motivation, but is still not autonomous motivation (Williams et al 2005a, Williams et al 2004). It is suggested that this motivation is related to existential control (Tones and Tilford 2001), but the underlying mechanisms and Confucian influence of this type of motivation deserve further research.

Third, what constitutes caring nurses in a HK cultural context where East meets West should be further investigated. The findings of such research would fill the gap in the literature and inform nursing preparation and practice.

Fourth, this study is the first to document Chinese cultural influences on patient and nurse perspectives on equal partnership. Although the findings show that equal partnership might be well received conceptually, it is recommended that its application in the Chinese context deserves further study. Chinese people are steeped in a culture of deference to authority (Chen 2001, Cheng 1997, Bond 1996), and nurses often adopt an over-protective parental role in the provision of healthcare. It is therefore important to examine how equal partnership could be facilitated and the influence that it might have on nurse-patient dynamics and the confidence of patients to self-manage.

Fifth, the nurses in this study perceived that some of the patients had a "couldn't careless" attitude towards poor glycaemic control. This raises the research issues of the causes of passivity towards self-management in patients and the influences on the perceptions of nurses. The answers may better prepare nurses to meet the health needs of their patients.

Sixth, although the finding that the nurses felt a strong responsibility for patients' self-management is not new, this study extends the understanding of this perception as arising at least in part from nursing socialisation. How an environment might be created to socialise the next generation of nurses and re-socialise experienced nurses to adopt a holistic and empowering model of care is a major research question that should be addressed by the nursing discipline.

Seventh, nurses' perceptions of scientific and tacit knowledge and the power relationships between doctors, nurses and patients deserve further investigation.

Finally, this study shows that a heavy patient load in part bind nurses to the preventive model. This has implications for reorienting healthcare system to one that is conducive to relationship-oriented care processes (Vinicor 2004, Power 2003, Lorig 2003), which in the long run may prove to be more cost-effective (Holman and Lorig 2004). This is again an area for future research (Jack 2003, Heller 2002).

The research questions and phenomena identified here for further investigation are immensely complex (Muhlhauser and Berger 2002). They are embedded in the contemporary context and cannot be addressed by clinical trials or outcome studies (Rootman et al 2001, WHO 1998b). Tones (2000) suggests that the complexities of health promotion activities and the importance of gaining insight into the effects of interventions require a new kind of validity that can be achieved through the triangulation of evidence. Nutbeam (1998, p38) suggests the building of evidence using multiple methods and multiple sources of data to provide "depth and insight into people's experience, and the social contexts that strengthen, support or diminish health".

The suggested research directions require rigorous research designs. The case study design, with its advantages of allowing the examination of phenomena within context and flexibility with multiple triangulation (Thompson 2004, Yin 2003b), may serve as one of the appropriate choices of design.

7.6.2 Theory development

This writer developed a theoretical framework (Figure 4) to serve two purposes: to aid the analytical understanding of the components of the diabetes education process and as a basis for considering how what is unknown about the education process might be organised. This writer is cognisant of the fact that this framework was developed from the literature, in which the expert view dominates. This in part contributes to the need to undertake this study as an attempt to better understand the adequacy of the framework in understanding the research question. This finding and the overall study show the framework to be competent in this regard.

Following the data collection and analysis, the initial framework was revised empirically based on the findings (Figure 8). Given that theory refinement is a continuing process based on a series of studies that generate a pattern of results (Shearer 2004), this writer suggests that the empirically revised framework, as a descriptive theory, may help with understanding the education process in a Chinese context for patient self-management across other chronic disease categories, such as cancer, heart diseases and schizophrenia. This framework may also be applicable in countries, such as South Korea, Japan and Singapore, where the Confucian orientation has a deep impact on the culture.

Moreover, the literature underlines the dangers of importing “Western models” into other cultural traditions (Spector 2004). The dangers are made obvious by the findings of this study. While the findings show that both the patients and nurses accepted the conceptual elements of equal partnership (mutual respect in the encounter and two-way communication between both parties to deal with self-management issues), which form the basis of self-empowerment model of diabetes education, the interpretation of equal partnership in the HK Chinese context is different from that of the Western conceptualisation (see Section 6.2.2.6 and 7.4.2). An important contribution to theory development of self-empowerment in a Chinese context is the finding of the two overarching themes of control and concern that explain what happened in the education process. In particular, this study shows that these two themes were co-created by the nurses and patients in part under the influence of the ingrained expectations of Chinese people about benevolence of health professionals, and the nurses’ ability in expressing culturally appropriate concern and expertise in information-giving. This writer suggests that these findings have the potential for a re-conceptualisation of the Western model of self-empowerment in the HK Chinese context, where

Confucianism has a strong influence on moral code based on human relations (Li 2003). The processes of re-conceptualisation may bring about the development of a sino-theory of self-empowerment.

This writer developed the ESAS (Appendix 9) as an education-specific analytical tool for provider-patient interaction in education encounters. The ESAS (4.5.3.2.5) was developed both deductively (informed by the literature) and inductively (informed by the study data), following the conceptual steps suggested by experts in developing coding schemes (Morse and Mitcham 2002, Patton 2002, Crabtree and Miller 1999, Miller and Crabtree 1999, Miles and Huberman 1994). One of the steps involved two members independently coding a subset of the data, which resulted in the same findings. This writer suggests that the ESAS is valid, in that it gives a true representation of the education strategies of the three theoretical models of diabetes education that it is intended to analyse, and is reliable, in that there was a high consistency of data being assigned to the same code by different coders or the same coder on different occasions (Long and Johnson 2000). However, the coding phase using the EASA normally requires six-times more time than the education encounter being analysed, which is one and a half fold of the time required for a RIAS analysis. Coders also need a good understanding of the theoretical underpinnings of the ESAS, and thus training is necessary.

This study suggests that the ESAS, with its conceptual specificity, surpasses the RIAS and was useful in discerning the education strategies employed by the nurses and the theoretical model that underpinned their practice. In addition, the qualitative mode of analysis allowed the examination of nurse-patient dynamics, which is rarely documented. It is suggested that the ESAS, with modification, may be used to code and analyse other health and patient education encounters. Such studies would contribute to the body of knowledge about the education process.

The RIAS analysis threw up two inherent limitations in the coding and analysing of education encounters using this system. First, the RIAS Manual (www.RIAS.org Version 2002) categorises "Counsels – psychosocial-feelings" as a task-focused variable. The instruction for coding reads as follows:

> "Any psychosocial utterance made by the physician should be coded as a Counsels – psychosocial statement . . . psychosocial issues, including emotional problems and concerns. These statements suggest actions or changes in behaviour that involve the patient's volition or control of habits".

However, this study shows that many of the utterances coded as the RIAS variable of "Counsels – psychosocial-feelings" included those in which direct advice was given by the nurses (5.3.3.4.3). The coding of this communication behaviour as "Counsel" confutes the principles of counselling psychology (Fairclough 2005) and its application in healthcare, which hold counselling to be the facilitation of the development of insight and self-directed goals in patients. This writer recommends the renaming of this code to "Information giving – psychosocial-feelings" for education analysis.

Another limitation of the RIAS is that some of the utterances coded as the RIAS variables of "Agree", "Back channel" and "Check", when examined within the context of the whole encounter, revealed the use of active listening skills by the nurses to help patient to vent their negative feelings or develop insight (ESAS 5.3.3.6). Active listening is an important element of counselling (Fairclough 2005), which in turn is an important education strategy in self-empowerment (Tones and Green 2004).

This study supports the assertion of Hampson et al (1996) that the RIAS has limitations in addressing some important features of education encounters. Indeed, Roter (Roter and Larson 2002) suggests incorporating other schemes, in particular those qualitative in nature, to help discern the specific characteristics of healthcare encounters.

7.7 Limitations

The main strength of this case study lies in its theoretical framework, multiple triangulation and in-depth analysis of naturally occurring nurse-patient education encounters in a clinical setting over six months, the data from which offer readers "a strong handle on what real life is like" (Miles and Huberman 1994, p10). Patient and nurse perspectives of the education encounters and patient outcomes were collected to enabled the validation and holistic description of the education process, which is limited in the research literature. In addition, this is the first study of this kind to be undertaken in a Chinese context.

However, this study has some limitations. The data collection period for the nurse-patient interaction data lasted for six months, but eight of the 20 patients continued attending the education programme for some time after the conclusion of the data collection period. The collection of data until all of the patients had finished the programme might have produced a more detailed evaluation. In addition, taping the nurse-patient telephone contact might have provided a more comprehensive evaluation.

Although this study has a prospective design, with the data on patient outcomes being collected at base-line and at six months, the time frame prevented the study from exploring the sustainability of patient outcomes. The practice of the centre in the study is that each patient is assigned a named nurse on first enrollment at the centre for diabetes education. This caused an uneven distribution of patients across the nurses. Nevertheless, the data analysis shows the same pattern of nurse-patient interaction for all the nurses.

Finally, although the diabetes education centre is nurse-led, the nurses work within a multidisciplinary hospital team, including diabetologists, social workers and dieticians. Gathering the perceptions of the other team members would have provided other perspectives on the education process.

7.8 Conclusions

The process of diabetes education is described as a "black box", which this study attempts to unpack using thick description. Specifically, this study evaluates the diabetes education process in a nurse-led diabetes centre in HK. Building on the existing knowledge of health promotion and provider-patient interaction in education encounters, this writer constructed a theoretical framework to guide the data collection and analysis. Adopting an embedded single case study design and multiple triangulations, this writer collected data from the case study centre to fulfil the research aim.

It is evident from the data that the nurses adopted the preventive model of diabetes education in practice, with the self-empowerment model being merely an espoused theory. The two overarching themes of control and concern explain what happened in the education process, which was characterised with three process characteristics: the communication skills of the patients and nurses, the education strategies of the nurses and a positive nurse-patient relationship. Chinese culture and the acute-care culture permeated the process and influenced the way in which the patients and nurses interacted with each other and the development of the nurse-patient relationship. The education process based on the preventive model, although enhancing the technical knowledge of patients for self-management, was perceived by the patients to be inadequate for meeting the demands of self-management. The patients perceived diabetes self-management to be part of their total life context, and although the patients generally achieved improved glycaemic control, this achievement was perceived to be influenced by both the internal and external environment, in which adequacy of knowledge is only one of the elements. The important role of a positive nurse-patient relationship in motivating the self-management of patients is also identified. These findings highlight the positive aspects of the nurses' professional and personal attributes, their ability in expressing culturally appropriate concern and expertise in information-giving. The two over-arching themes of control and concern were co-created by the nurses and patients, which lends support to the dangers of importing "Western model" into Chinese cultural tradition. In addition, although both parties accepted the high relevance of the conceptual elements of equal partnership, their interpretation of equal partnership showed differences from the Western conceptualisation. These findings have the potential to contribute to the development of a sino-theory of self-empowerment that is contextualised in a Chinese cultural setting where Confucianism has a deep impact.

The findings also suggest that moving towards a paradigm shift to the self-empowerment model in clinical settings requires attention to three interwoven issues, which are ideological, technical and contextual in nature. Two main recommendations are made: that nurses should be empowered through the development of their professional capacity and that environments supportive of self-empowerment should be created. These actions should be undertaken together to ensure synergetic effects. It is suggested that Chinese culture with its root in the Confucian orientation has challenges and promises in making the paradigm shift.

This is the first study to examine directly the diabetes education process in a natural setting. This study takes the field of knowledge about the process of diabetes education to new levels with its findings on the usage patterns of education strategies, the theoretical models of diabetes education, the nurse-patient relationship in a Chinese context and the link between the education process and patient outcomes. Although this study answers the research question, it also raises many other research questions for further investigation. It is also suggested that the empirically revised theoretical framework, the tripartite conceptual analysis of the theoretical models of diabetes education, and the Education Strategy Analysis Scheme, that was developed in this study, could help understand the education process for other chronic diseases.

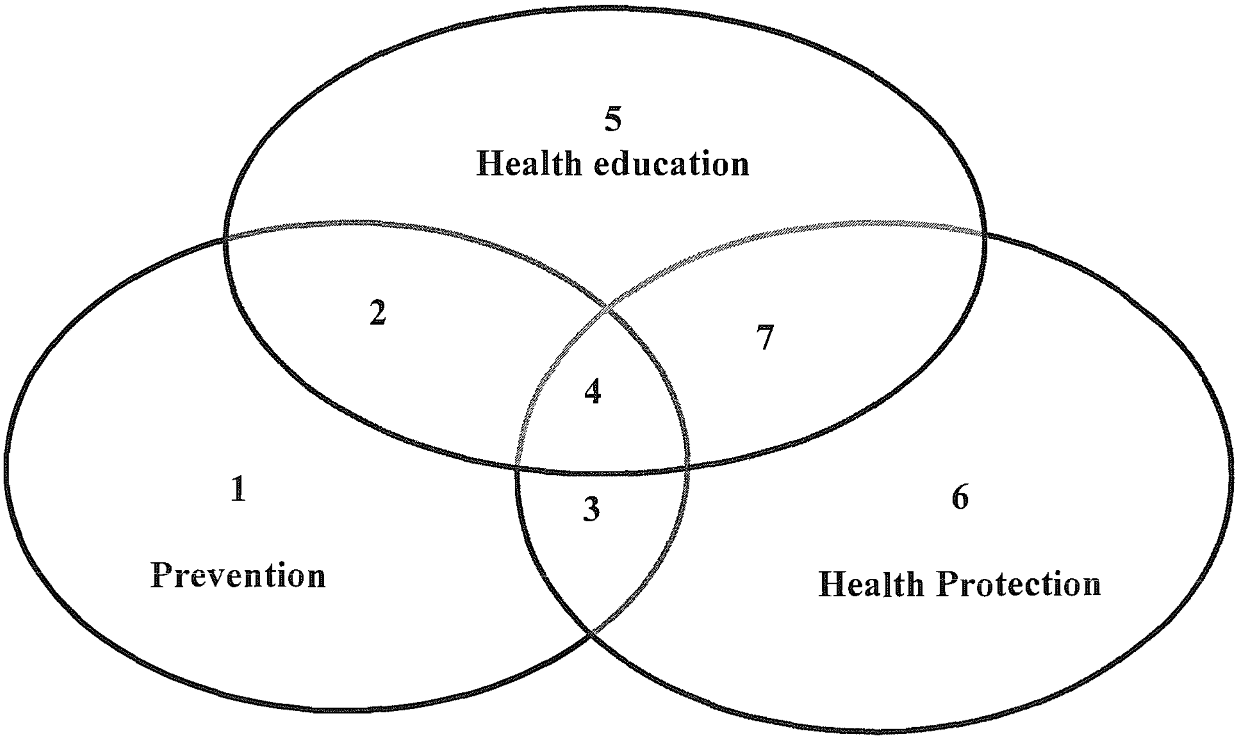
Appendix 1
Major accounts of models of health promotion

This table shows Ewles and Simnett's five approaches to health promotion (Ewles & Simnett, 1999)

	Aim	**Health promotion activity**	**Important values**	**Example - smoking**
Medical	Freedom from medically – defined disease and disability	Promotion of medical intervention to prevent or ameliorate ill-health	Patient compliance with preventive medical procedures	*Aim* – freedom from lung disease, heart disease and other smoking-related disorders Activity – encourage people to seek early detection and treatment of smoking-related disorders
Behaviour change	Individual behaviour conducive to freedom from disease	Attitude and behaviour change to encourage adoption of 'healthier' lifestyle	Healthy lifestyle as defined by health promoter	*Aim* – behaviour changes from smoking to not smoking Activity – persuasive education to prevent non-smokers from starting and persuade smokers to stop
Educational	Individuals with knowledge and understanding enabling well-informed decisions to be made and acted upon	Information about cause and effects of health-demoting factors. Exploration of values and attitudes. Development of skills required for healthy living	Individual right of free choice. Health promoter's responsibility to identify educational content	*Aim* – clients will have understanding of the effects of smoking on health. They will make a decision whether or not to smoke and act on the decision. Activity – giving information to clients about the effects of smoking. Helping them to explore their own values and attitudes and come to a decision. Helping them to learn how to stop smoking if they want to

Client-centred	Working with clients on the clients' own terms	Working with health issues, choices and actions with which clients identify. Empowering the client	Clients as equals. Clients' right to set agenda. Self-empowerment of client	Anti-smoking issues are only considered if clients identify them as a concern. Clients identify what, if anything, they want to know and do about it
Societal change	Physical and social environment which enables choice of healthier lifestyle	Political/social action to change physical/social environment	Right and need to make environment health-enhancing	*Aim* – make smoking socially unacceptable, so it is easier not to smoke *Activity* – no smoking policy in all public places. Cigarette sales less accessible, especially to children, promotion of non-smoking as social norm. Limiting and challenging tobacco advertising and sports sponsorship.

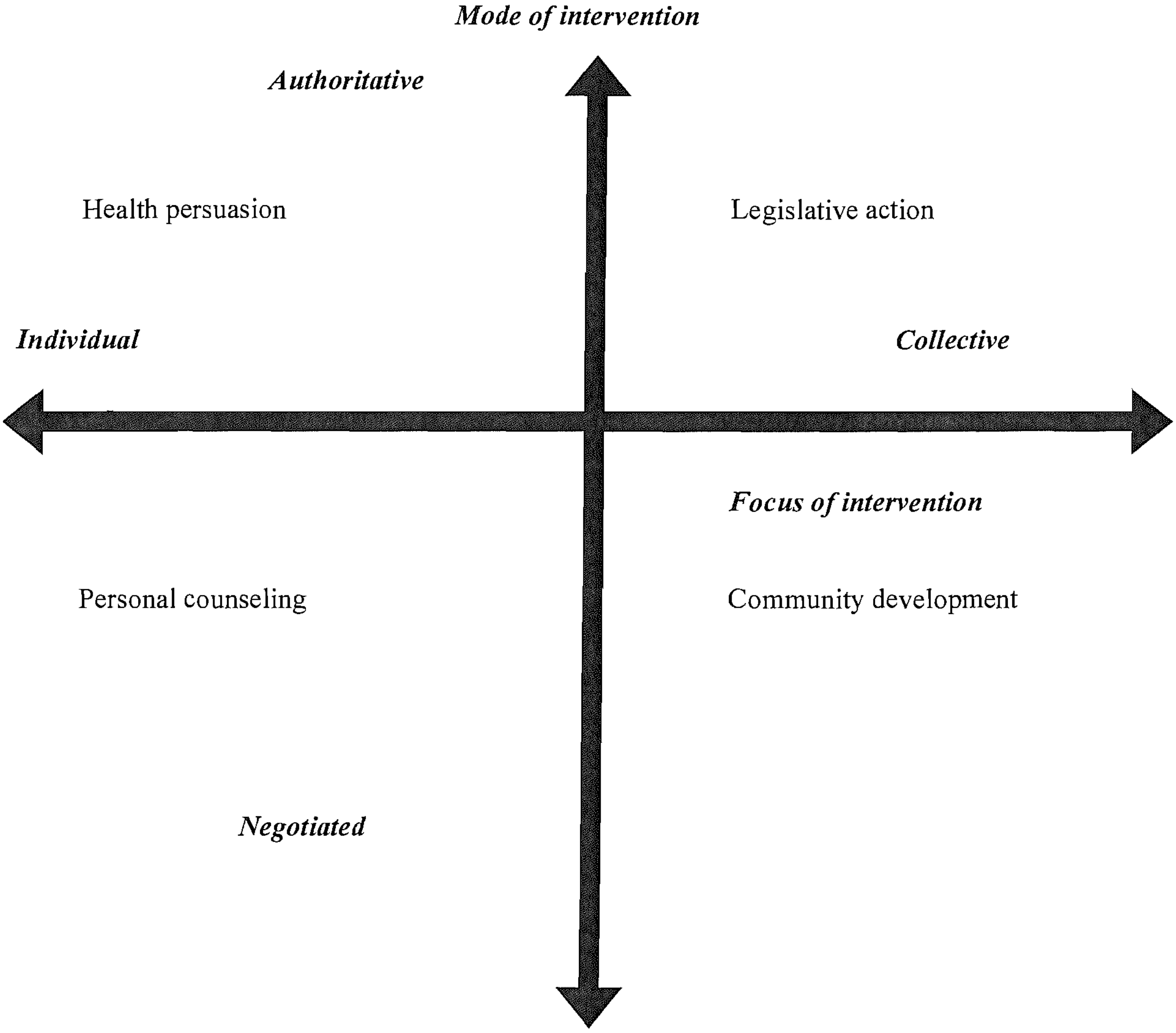
This figure shows the Downie et al's model and its 7 dimensions (Downie et al., 1996)



Within these intersecting circles lie seven possible dimensions of health promotion:

1. preventive services, e.g. immunization, cervical screening;
2. preventive health education, e.g. smoking advice;
3. preventive health protection, e.g. fluoridation of water;
4. health education for preventive health protection, e.g. seat-belt lobbying;
5. positive health education, e.g. building lifeskills with groups;
6. positive health protection, e.g. implementing workplace smoking policy;
7. health education aimed at positive health protection, e.g. campaigning for protective legislation.

This figure displays Beattie's Model of Health Promotion (Beattie, 1991 in Jones & Naidoos, 2000)



This table shows French and Adams' tri-phasic model of health education (French & Adams, 1986)

	Behavioural change	**Self-empowerment**	**Collective action**
Aim	To improve health by changing people's behaviour	To improve health by developing people's ability to understand and control their health status	To improve health by changing environmental, social and economic factors through community action
Model of health	Optimum biological functioning and role performance	Spiritual, physical, mental, environmental and social harmony	Health is a socially defined concept related to individual and group norms
Model of humanity	Rational decision making	Personal fulfillment	People are social animals and rational problem solvers
Model of society	Positivist, hierarchical and stratified	Society is organic, plant or animal like	Materialistic, conflict between factions and various interests
Model of education	Classical humanist	Progressivist Education is about growth and personal development	Reconstructionist Education is an agent of change
Examples	Propaganda Mass media and mass participation campaigns	Life skills training Value clarification	Advocacy Knowledge and consciousness raising Community action, Pressure groups

This table summarizes the major characteristics of Tones and Tilford's three models of health education (1989, 1994)

	Goal	Indicators of success	Criticism
A preventive model	To persuade individuals to take responsible decisions. To adopt behaviours which will prevent disease at primary, secondary and tertiary levels Proper utilisation of health services	Individuals or communities demonstrate that they have adopted a more healthy lifestyle.	Individual focus, Victim blaming, Medicalisation, Healthism
A radical-political model	To get to the root of ill health, Take polemical action to achieve social and environmental change, Critical consciousness raising	A heightened level of awareness or critical consciousness People united to seek for social changes	Massaging political consciousness of communities, Limiting opportunities to make healthy choices
A self-empowerment model	To facilitate choice, not merely by providing understanding, value clarification, and practice in decision making, but attempting to empower the individual.	Raised self-esteem, Self-efficacy belief, Demonstration of a variety of social and lifeskills	Difficult to evaluate, Outcomes take a long period to be evident

Appendix 2: Diabetes education research

This table displays methodological concerns identified in literature reviews of diabetes education research

Review	Nature	Methodological concerns
Ellis et al (2004)	A meta-analysis of 21 RCTs (1990-2000) obtained from seven databases. The main purpose was to identify the effect of diabetes education interventions on glycaemic control and to identify specific variables of the education interventions that contributed to the effect.	• While this meta-analysis found that education interventions improved glycaemic control with a net change of HbA1c at 0.32%, the authors cautioned that the net change might be underestimated due to the fact that the HbA1c readings for estimation in the meta-analysis were those 8-12 weeks after the intervention. They suspected the impact of education on glycaemic control might not have shown its full effect so soon. • The authors raised the issue of the lack of effect of the 'dose' or amount of intervention on glycaemic control. They wondered whether this finding was due to the length and intensity of the intervention as well as the variation in quality of the intervention. • The authors suggested investigating the specific attributes of education interventions that this meta-analysis identified as having better impact on glycaemic control: a face-to-face delivery, cognitive reframing teaching method, and exercise content.
Van Dam et al (2003)	A systematic review (1980-2001) using eight RCTs to test the effects of the modification of provider-patient interaction and provider consulting style on patient diabetes self-care and diabetes outcomes	• Tentative conclusions: interventions using direct approach to support patient participation in diabetes care and self-care behaviour got the most effective outcomes, while those focusing on change of provider behaviour were less, thereby the authors suggest the need to shift the focus from the traditional medical model. • It also appears that "support of doctor and patient behaviour to negotiate more realistic individualised treatment goals with patients, shows clearer positive outcomes" (p21).
Steed et al (2003)	A systematic review (1980-2001) of 36 studies using pre-post or controlled trial design to examine the impact of education, self-management and psychological interventions on psychosocial outcomes including depression, anxiety, adjustment and quality of life	• Of the 36 studies identified, 75% were published after 1992, indicating psychosocial outcomes have obtained more attention since 1990s. • Depression seemed to be partially improved after psychological interventions (i.e focusing on negative mood states). • Quality of life improved more after self-management interventions (technical and psychosocial skills training), overall, self-management interventions did better than education interventions (information-giving) in bringing about improvements. • Most studies either suffered from under-powered or no control groups. Many did not use diabetes specific measures. The majority did not describe the intervention components. The original aim was to identify the efficacy of different intervention components on outcomes, but this was not achieved because of lacking description.
Jack (2003)	Reviewed 24 studies published	• Of the 24 studies identified from the search, only 14 described the process of community

	since 1995 to examining the effects of diabetes self-management education in community settings	partnerships or collaboration. Out of 14 publications, only 8 reported evidence as to whether education improved outcomes. • Only two out of the 8 publications incorporated behavioural or education theories or models to determine the effects of the interventions on outcomes. • All the 8 publications utilised quantitative approach, using either RCTs or pre-post intervention studies with limited investigation on the process of the intervention itself.
Krischbaum et al (2003)	A systematic review on theoretical and empirical articles published between 1985 and 2001 to examine empirical evidence about factors that contribute to effective diabetes self-management with a specific focus on self-efficacy as an outcome	• The authors concluded that empirical evidence of the review supported the following factors as improving the education outcomes: o involve people with diabetes in their own care o guide them in actively learning about the disease o explore their feelings about having the disease o teach them the skills to adjust their behaviour to control their own outcomes • The authors suggest education sessions to be of fewer lectures and more interactive exercises that focus on developing specific skills. In addition, they also suggest follow-up contact being valuable for helping patient adjustment to living with diabetes.
Brown et al (2002)	Reviewed quantitative studies that addressed cultural characteristics of racial and ethnic groups, but the period of the review was not clearly stated	• A lack of research with populations other than that living in the West, which bear a disproportionate burden of diabetes. This leads to a serious under-report of cultural characteristics and the respective self-management education interventions of these populations.
Williams & Zeldman (2002)	Reviewed studies to find out how diabetes self-management education (DSME) derived its outcome effects from 1998 to 2001	• Many studies lacked a theoretical framework to guide the selection of outcomes for investigation • Although patient-centred diabetes self-management education is increasing used as a framework, authors need to explore ways to sustain its use overtime. There has been inadequate assessment of the ability of practitioners and healthcare systems to implement and adopt the concept.
Norris et al (2002)	Reviewed RCT studies from 1980 to 1999 that tested the effect on glycaemic control of DSME on adults with type 2	• Many studies showed that the immediate improved glycaemic control could not be sustained overtime and this needs exploration • Also needed to explore is the effectiveness of DSME on cardio-vascular disease risk factors and patients' quality of life. These are areas that received inadequate attention.
Anderson & Funnell (2000)	Reviewed studies from 1966 to 1999 to identify and highlight the consequence of using the	• Note the shift from the acute care/compliance focused paradigm to an empowerment/collaborative approach in the 1990s. • Note that the shift requires a new vision of DSME and a deeper exploration of the roles of

	concepts of compliance and adherence to describe patient self-management behaviour	educators and patients. Thus this shift requires a new approach to the research.
Roter et al (2001)	In a review on patient education research from 1988 to 2000 that aimed to identify the historical and contemporary context of patient education in the US, the authors used diabetes education research as an example to illustrate the implications of the empowerment movement.	• "The progressive transformation of patient education will depend on its embrace of the broad agenda of health promotion" (p84). To do so will include the exploration of what outcome measures are to be of values. • The main bulk of current outcomes measures are often cognitive, behavioural or physiological in nature, which may not reflect the values of empowerment movement. • A priority area in research is to incorporate measures about patients' values, quality of life, and goals that are meaningful and important to patients. • Patients' voice is seldom heard in the research.
Elasy et al (2001)	Reviewed studies from 1990 to 1999 to develop and characterise the variables of diabetes education to give future studies a template for planning and reporting their work	• The authors call on editors and researchers to use the taxonomy for diabetes education interventions that they developed from the review. They argued that this would enhance both conceptual clarity of the design and improve rigor in the report.
Whittemore (2000)	Reviewed studies focused on lifestyle changes from 1985 to 1999	Proposed research priorities: • increase theoretically ground research • measure theoretical concepts (e.g. self-efficacy) • expand research methods to make the voice of patients and nurses heard • clarify strategies and interventions • identify cultural variations
Young-Hyman (1999)	Reviewed studies that included provider characteristic as a variable from 1985 to 1998 (only 12 studies met the selection criterion)	• Minimal studies identified provider characteristics/attitudes/skills and link them to outcomes • Need to ask how does the education process work rather than does it work. • Need to define therapeutic alliance between provider and patient and assess its effects on patient outcomes • Suggest using performance measures to assess providers' characteristics, including patient rating of provider skills and interpersonal style.

Brown (1999)	Reviewed studies that published between 1978 and 1998 and compared those reported before and after 1990 to identify recent changes and patterns in DSME	• Most studies continue to give inadequate description of the education intervention tested, making replication and application difficult. • Those DSME interventions that combine input in knowledge with behavioural strategies produced the greatest benefits, yet how this is so need exploration.
Fain et al (1999)	Reviewed studies from 1985 to 1998 (78 studies) to take stock of the past and identify important issues that research has left unanswered	• Most studies lacked a theoretical framework (only 6% employed one) • Lack description of the education process • What particular aspects of the process lead to the outcome achievement • Lack the voice of patients • Need to explore the difference between one to one and group education activities • Need to explore the effect of coping skills and behavioural strategies on patient outcomes
Glasgow (1999)	Reviewed outcome research from 1997 to 1999 and compared the use of outcomes with those prior to 1990 (only 12 studies met the selection criterion)	• Knowledge and HbA1c are the most commonly used outcomes • Need to collect data on patient and process characteristics to help explain outcomes achieved • Need to address generalisation issues
Glasgow et al (1999)	Reviewed studies from 1985 to 1998 to summarise the current status of behavioural research and practice in diabetes education	• Behavioural scientists need to organise and present their research to potential users of this knowledge including health care professionals, organisations and funding agencies. • Patient empowerment approach is categorised as a behavioural strategy to bring about self-management behaviours.
Albano et al (1998)	Reviewed RCT studies from 1986 to 1996.	• Using a checklist (Education Procedure Check List) to categorise the studies, the authors found that few studies described the educational interventions tested. • Recommended that RCTs should contain information on o Patient needs o Learning objectives o Planning and implementation of the interventions o Evaluation system used o Provider-patient interaction

Appendix 3: Health provider-patient communication

This table displays methodological concerns identified in literature reviews of health care provider-patient communication

Review	Nature	Methodological concerns
Willems et al (2005)	A systematic review of 12 research papers (searching those published between 1965 and 2002 and 12 met the inclusion criteria) to explore whether patients' socio-economic status influences doctor-patient communication	• The reviewers found that while communication behaviour of doctor in healthcare provision has been agreed to have great impact on patients, very small amount of studies were conducted to identify the relationship between the behaviour and patients' socio-economic status. • The most common measures for socio-economic status were patients' educational level, income and occupational status. • Depending on patients' socio-economic status, doctors' communicative behaviour varies. Doctors' communication style also changes according to patient's style. Patients from a lower social class seem to have less power to influence doctors' communicative behaviour during consultations. Willems et al suggest research on patient empowerment methods as an attempt to solve this practice problem.
Shattell (2004)	Review the literature on nurse-patient interaction, did not set a time frame and did not report how many studies were retrieved. Selection criterion was any studies relating to the nature of nurse-patient communication. The main purpose was to relate the studies to a theoretical model, Goffman's model on face work, and to identify areas for further research.	• This review found that the nurse's communication was most often the focus of the investigation. • Only three studies were identified that explored patient perception of the nurse-patient interaction (Fosbinder 1994, Drew 1986, Breeze and Repper 1998). • Shattell concluded that many research questions remain. Some of the questions are: o How do patients communicate with nurses? o How do communication styles of patients affect nurse-patient interaction and health outcomes? o How does the consumerist culture impact professional power and the nurse-patient relationship?
Cegala and Broz (2002)	Reviewed 26 studies published from 1990 till 2001 of doctor communication skills training to examine the communication objectives and behaviours.	• All studies were of quantitative design • Overwhelmingly studies reported limited information about communication behavours • Most assessment tools and procedures did not match with the stated taught behavours • A generally lacking of a theoretical framework for selecting communication skills within the interview context to frame the focus of investigation
Wilson and Childs (2002)	Reviewed 10 studies (13 papers) in general practice from 1966 to	• All studies were of quantitative design • Relying on volunteer doctors, potential confounding effect of case mix in patient samples

	1999 to examine differences in consultation process and health outcomes.	• A few studies examined patient outcomes • A booking interval of ten minutes was the most powerful predictor of the quality of management of chronic disease
Kruijver et al (2000a)	Reviewed 20 studies in nurse-patient communication in cancer care from 1980 to 1997 to examine the communicative behaviours of nurses during care activities with patients who have cancer.	• Five studies used mainly a quantitative design, others used either qualitative or a mixed design • Only nine out of 20 studies directly evaluated the nurse-patient communication and used observational analysis • Observation techniques included audio- (n= 4), video-taping (n = 2) and field observation (n = 1). Two studies did not elaborate on how the observation was conducted. • Only three studies reported the inter-rater reliability of the coding system used. Other six studies did not report and figures on reliability and validity. • Small sample size in the studies using a qualitative design; for patient sample, it was ranged between 6 and 14; for nurse sample, it was ranged between 6 and 53.
Kruijver et al (2000b)	Reviewed 14 studies published between 1985 and 1998 that were on communication training programmes in nursing care to identify effects on nurses skills and behavioural changes in practice and in turn on patient outcomes.	• All studies were of quantitative design • Programmes to enhance nursing communication skills are plenty, but only a few evaluation studies could be identified for the review • While direct observation techniques such as audio- (seven studies) and video-taping (four studies) of nurse-patient interaction were used in 11 of the 14 studies, only three studies reported the inter-rater reliability of the coding system. No study reported the validity of the coding systems. In fact the framework of analysis of interaction data was not clearly documented in the rest of the eight studies. This is a consistent methodological issue.
Hulsman et al (1999)	Reviewed 14 studies (15 papers) published between 1985 and 1998 on evaluation of communication skills training programmes for clinically experienced physicians focusing on training objectives, educational methods, evaluation methodology and instruments and training results.	• All studies were of quantitative design • The average number of subjects in the studies was 38, ranging from 6 to 80. This raises an issue about the small sample size especially the studies were of quantitative design. • Observation of the real encounters was carried out in five of the 14 studies. • Eight of the 14 studies used either or both audio- (n = 4) and video-taping (n = 8) techniques. Although video-taping recorded both verbal and non verbal aspects of communication with real of simulated patients, audio-taping can be applied more easily and unobtrusively. • Training effects were measured from three aspects: physician self-ratings, behavioural observation (interaction data analysis), and patient outcomes (e.g., patient-ratings of the physicians' communication skills, satisfaction, compliance, anxiety, general health). • In relation to enhanced satisfaction, some training effects were found in four studies, yet three other studies found no improvements. Hulsman et al (1999) observe that studies with

		no improvement had high baseline satisfaction levels of the patients, so the satisfaction scores showed little variation. • Three different research designs were used, RCT, pre-post test design, post-test control group design. Hulsman et al (1999) concluded that the latter two were weak design, and that the most adequate designs reported the fewest positive training effects.
Williams et al (1998)	Reviewed studies published from 1968 to 1997 on doctor-patient communication to examine to what extent information provision, information seeking and negative/positive affect expression and communications style of the doctor are related to patient satisfaction	• All studies were of quantitative design • Note the inherent weaknesses of using interaction analysis systems to code interaction, missing out some important data and giving unclear classification • A lack of measurement or control for other input factors that may have impact on the process of consultations and satisfaction rates • Fail to analyse doctor and patient communication behaviours separately • The majority of investigations have been carried out in the US
Caris-Verhallen et al (1997)	Reviewed 21 studies (23 papers) in nurse-patient communication in elderly care from 1986 to 1995 to examine the role attributed to communication in various theories of nursing, nurses' communication styles with elderly patients and the determinants of the quality and quantity of nurse-patient communication	• Studies of quantitative and qualitative design were identified for the review • Studies were conducted on institutional care only • Of 15 studies that utilising direct observation techniques, ten used field work, two used video-taping and three used audio-taping. Inter-rater reliability was reported in seven out of 12 studies, of which a coding system was involved. • Only specific components of the communication process were focused • No development on observation instruments • Limited studies on patients' contribution to communication • Limited studies on how the communication process influencing patients' outcomes
Ong et al (1995)	Reviewed quantitative studies on doctor-patient communication from 1979 to 1993 to address (1) different purposes of medical communication; (2) analysis of doctor-patient communication; (3) specific communicative behaviours; and (4) the influence of communicative behaviours on	• Three main types of interaction analysis systems (also called observation instruments): cure, e.g., Bales; care, e.g., Patient-centred; cure and care, e.g., RIAS • Atheoretical decision on the choice of an interaction analysis system "because of its availability and proven high reliability"(p906) • Doctors' informative giving behaviour is the most common attention in the process variables • Mainly short term patient outcomes are used • Background, process and outcome variables seem to be related to each other but have not been studied empirically

	patient outcomes.	
Jarrett and Payne (1995)	Reviewed studies on nurse-patient communication from 1964 to 1993 to examine patient contribution to the communication	• This review covered only verbal communication • Inadequate attention to patient contribution to conversations • Inadequate attention to patients' perceptions of nurses • Inadequate attention to the contextual (e.g., type of nursing and patients) and environmental influences (e.g., organisation context and ethos, nurses' control over work organisation)
Stewart (1995)	Reviewed 21 RCTs and analytic studies of doctor-patient communication in which patient health was an outcome variable from 1983 to 1993 to examine whether the quality of physician-patient communication makes a significant difference to patient outcomes.	• Inadequate attention to patient education and its evaluation on patient outcomes • Cohort studies are needed to assess the association of communication measures with patient outcomes • Communication is an interactive process; qualitative studies are particularly helpful to describe the process as a whole
Simmons and Elias (1994)	Review studies conducted in South America on doctor-patient communication in the field of family planning from 1970 to 1994 to examine methodological issues.	• "Because the dominant thrust in the field of public health directs researchers toward quantitative methods, in-depth approaches tend to be underemphasised" (p6) • Data collected mainly from three sources: patients, providers, and direct observation of provider-patient interactions, with a few studies taking on the three methods together
Anderson and Sharpe (1991)	Reviewed 40 RCTs designed to enhance communication skills of patients or doctors from 1973 to 1989 to draw implications for methodological concerns.	• Inadequate description of the interventions as a persistent problem • Inadequate conceptualisation of interventions (underlying theory) and their intended effects • Small sample size as a consistent problem • Inadequate attention to analyse techniques of patient education • Few studies examined patient outcomes, those included outcomes usually were of immediate nature, e.g. patient satisfaction

This table shows the rating system developed by the Michigan Diabetes Research and Training Centre (MDRTC, Anderson et al 1995) and the 12 interaction analysis systems reported by Ong et al (1995, p907)

Interaction analysis system	What does it measure?	Clinical relevance	Observational strategies	Inter-rater reliability (I.R.R.), validity	Channels of communicative behavior
MDRTC's Rating System (Anderson et al 1995)	Diabetes educators' counseling skills during diabetes education. Focus on patient empowerment skills	Specific to diabetes education; interaction between educators and patients.	Coding directly from audio-tapes	I. R. R. = 0.99 for simulated tapes I. R. R. = 0.66 for real patient encounters Validity could not be retrieved.	Restricted to verbal behavior.
Bales' Interaction Process Analysis	Interaction, information-exchange between participants. Focus on instrumental behavior.	Not specific to clinical situation. Developed for research in small group discussions (problem-solving behaviour).	Usually literal transcripts from audiotapes (or direct observation, videotape).	I.R.R. = 0.91 [6]. Validity could not be retrieved.	Applicable to verbal and non-verbal behavior.
Brown University Interpersonal Skill Evaluation (BUISE) [70].	Surgeons' Interpersonal skills, appropriateness of physician's behavior for a particular clinical encounter.	Specific to clinical situation; interaction between surgeons and patients.	Coding from videotapes.	I.R.R. = 0.91. criterion Validity = 0.36 Concurrent validity ranging from 0.23 to 0.74 depending on time intervals.	Applicable to verbal and non-verbal behavior.
Interaction Analysis by Maguire et al	Interaction interviewer-patient. Focus on key interviewing behaviors which are thought to facilitate disclosure of patients' concerns.	Specific to interaction with cancer patients.	Coding via transcripts prepared from audiotapes.	I.R.R. ranging from 0.81 to 0.91. Validity could not be retrieved.	Applicable to verbal and non-verbal behavior.

Katz' Resource Exchange Analysis (REA).	Interpersonal behavior in terms of exchanges of "resources" (e.g. information, attention, explanation). Also categorises "mode" of exchange: "initiating" or "responding".	Resource categories derived from clinical setting; high degree of clinical relevance.	Direct observation or transcripts.	Reliability/validity could not be retrieved.	Applicable to verbal and non-verbal behavior.
Maastricht History – Taking and Advice Checklist [71].	Physicians' interviewing skills during initial interviews in primary health care.	Specific to clinical situation.	Coding from direct observation (or videotape).	I.R.R. ranging from 0.70 to 0.90. Validity described elsewhere [see 84].	Applicable to verbal and non-verbal behavior.
Medical Communication Behavior System (MCBS)	Time spent by physicians and patients on specific behaviors in categories of informational, relational and negative situation behaviours.	Specifically designed for assessing communication that occurs in (stressful) situations involving multiple health-care providers and family units.	Coding directly from audiotape, using a hand-held electronic data-storage device. Also video or live observation.	I.R.R. = >0.70. concurrent validity is high. Some evidence of construct – and predictive validity.	Applicable to verbal and non-verbal behavior.
Observer Checklist (OC)	Discussion of specific treatment – related topics as doctor of patient initiated, or not having occurred at all (based on PBCL).	Specific to interaction with cancer patients (discussion of treatment).	Coding directly from audiotape (or videotape).	I.R.R. = 0.88. Validity could not be retrieved.	Specific to verbal behavior.
Patient-Centred Method	Assessing doctor-patient interaction in terms of its patient-centredness.	Specific to clinical situation.	Coding directly from audiotape or direct observation.	I.R.R. = 0.91. Intra-R.R. = 0.88 Criterion validity = 0.51 and 0.89.	Restricted to verbal behavior.

Physician Behavior Checklist (PBCL)	Occurrence of specific oncologists' behaviors during brief doctor-patient encounter (morning rounds).	Specific to interaction with cancer patients.	Coding from direct observation (or videotape).	I.R.R. ranging from 0.85 to 1.00 (mean 0.95). Validity could not be retrieved.	Applicable to verbal and non-verbal behavior.
Roter's Interaction Analysis System (RIAS)	Doctor-patient interaction during medical consultations.	Specifically modified for the clinical setting (based on Bales' system).	Coding directly from audiotape (or videotape).	I.R.R. = 0.81 [9]. Validity could not retrieved.	Applicable to verbal and non-verbal behavior.
Stiles' Verbal Response Mode (VRM).	Language behavior implying interpersonal intent between communicator and recipient.	Not specific to clinical situation.	Coding via transcripts prepared from audiotape.	I.R.R. = 0.78 [76]. Validity could not be retrieved.	Applicable to verbal behavior only.
Observation System for Analysing Interaction Between Doctors and Cancer Patients	Communication between cancer pts and oncologists. Emphasis on occurrence of relevant topics, topic as being doctor or patient initiated, frequency of question-asking.	Specific to interaction with cancer patients.	Coding directly from audiotape.	.R.R. ranging from 0.49 to 0.78 (mean 0.65). Validity could not be retrieved.	Applicable to verbal behavior only.

Appendix 4: Health provider-patient interaction in diabetes care

This table displays health provider-patient interaction in the context of professional training for the delivery of diabetes education

Source, Type of providers being trained	**Adolfsson et al (2005), physicians and nurses**
Setting, Sample, What was being Studied?	Seven physicians and 12 nurses working at seven family practices in primary care setting in Sweden. The overall aim of the study was to gain insight into the physicians' and nurses' view of implementing empowerment group education in diabetes.
Design	Qualitative
Training on	Empowerment group education (EGC), a 2 day workshop that was adopted from the University of Michigan Diabetes Research and Training Centre.
Rationale for the training programme	While empowerment has been introduced as an approach in patient education since 1990s, the authors found that this requires a different set of roles of providers to make the implementation of this approach successful. Thus the authors studied the trainees views after implementing EGC.
Methods of data collection	3 focus group interviews with nurses (two groups, n = 5 and 6) and physician (n = 5) 3 to 9 months after implementing EGC. The interviews focused on (1) the opinion, (b) the application and (c) opportunities for and barriers to implementing the empowerment approach.
No. of interaction and its analysis	No direct observation on provider-patient interaction (only described the theoretical bases of the training)
Other data sets on the interaction	No
Patient Outcomes	No
HP model	Patient empowerment (Anderson et al)
Major findings	The major findings are derived from the focus group interview data. A central theme, "conflicting roles" emerged from the data. "The physicians and nurses knew their role in the traditional approach but not with respect to the empowerment approach, which they needed to grow into. At the same time as they started a new way of working, their role had changed from being an expert to being a facilitator. As experts they felt secure; as facilitators they needed support in their educational process. To implement EGC they required support both from the family practice and from a supervisor in direct connection with the EGC." (p319)

Source, Type of providers being trained	**Cooper et al (2003), Diabetes specialist nurse-patient**
Setting, Sample, What was being Studied?	Primary care setting, diabetes specialist nurses (n=not stated), 89 type 2 patients (Trial 59, control 36), Test the effects of a theoretically constructed educational intervention
Design	Longitudinal (14mon) RCT (wait-list), Quantitative and qualitative, Did not state the length of the staff training
Training on	Patient empowerment
Rationale for the training programme	Perceived the need of education to promote health whilst respecting individuals' self-perceived needs and voluntary choices but that health professionals are still struggling to administer it successfully
Methods of data collection	Pre-post clinical data and questionnaire administration, 10 focus group interviews with patients using semi-structure tool after the intervention
No. of interaction and its analysis	No direct observation on nurse-patient interaction (only described the theoretical bases and organisation of the intervention)
Other data sets on the interaction	The qualitative data of patients' perceptions was used to explain the processes underpinning the quantitative outcomes (10 focus group interviews)
Patient Outcomes	HbA1c; Questionnaire: Treatment effectiveness, Attitude, Diet, Exercise, Self-monitoring
HP model	Patient empowerment
Major findings	"The intervention was found to be clinically effective over a short period of time only. Limitations to maintaining effects …whilst patients can be educated toward greater autonomy, not all health professionals are ready to work in partnership with them. It highlight the importance of … not only gaining a better understanding of diabetes management, but also of the theoretical principles underlying patient empowerment" (p191).

Source, Type of providers being trained	**King et al (2002), nurses, dietitians, physicians and pharmacist**
Setting, Sample, What was being Studied?	30 nurses and dietitians, 2 physicians and 1 pharmacist (33 professionals) To measure the effect of the training programme on professionals teaching and counseling skills by evaluating their use of the 13 skills.
Design	Quantitative pre/ post-course comparison design The training taught in a block of 24 hours over 3 days to 33 health professionals.

Training on	"Effective patient teaching and problem solving": 4 major areas, assessment, brainstorming, collaboration and direct instruction skills (with 13 operationally defined skills).
Rationale for the training Programme	"Despite instruction, many patients do not employ diabetes related self-management skills recommended by health professionals. One problem suggested by research is that many health professionals do not often use teaching and counseling skills widely considered to be effective. Among these are specific skills that help health professionals conduct adherence-related assessments, brainstorm workable solutions to obstacles, collaborate during long-term follow-up, and provide effective direct instruction" (p94).
Methods of data collection	Videotaped exercises (quantitative approach) using a surrogate patient (university students), participants were given 15 min to finish each exercise.
No. of interaction and its analysis	A standardised teaching exercise was videotaped at both the beginning and end of the course (66 interactions). A self-developed coding system for the skills taught. Also measured the length of the taped exercise for comparison.
Other data sets on the interaction	Nil
Patient Outcomes	Nil
HP model	Not stated
Major findings	Skills improved (from 1.8 and 2.5, highest is 5, not up to 3, the rating that would have hoped to achieve) as well as the length of the interaction in the simulated exercise did not change.

Source, Type of providers being trained	**Doherty et al (2000), Diabetes team-patient**
Setting, Sample, What was being Studied?	Diabetes center, the diabetes team (n = 6, 1 doctors, 4 nurses, 1 dietitian), A feasibility study to define the essential competencies, the training methods, and assess whether this approach was practical in a diabetes centre
Design	Longitudinal (2yrs), mainly qualitative, The training lasted for 6m but did not state the intensity and frequency
Training on	Change counseling (the stages of change model, motivational interviewing and behavioural techniques).
Rationale for the training programme	Cited the importance of provider-patient interaction in helping patients to develop and maintain self-management, blood pressure and glycaemic control as the rationale for the development of the training course.
Methods of data collection	A series of 4 semi-structured interviews with the 6 members of the diabetes team, at 6m, between 6 and 12m, 12m after the training started, and the final 6m after the completion
No. of interaction and its analysis	Video-taped provider-patient interactions at the end of the training course, did not state how many, did not state how they were analysed

Other data sets on the interaction	Perceptions from the staff undergoing the training (4 episodes of semi-structured interviews)
Patient Outcomes	Not measured
HP model	Did not state
Major findings	The final video-taped interactions reviewed a few evidence of complex stage specific interventions, informing and advising were common. Self reported data revealed the application of skills were less frequent towards the end of the training project. The main barriers were time constraints and the overwhelming pressure of bio-medical aspects of consultation. "The stages of change model, motivational interviewing and behavioural techniques (collectively called "change counseling") are relevant to work in this area. Acquiring the competencies was harder to achieve than anticipated. … However, the competencies were difficult to apply in the clinical setting given time constraints, the strength of existing staff routines and the patients' readiness to change" (p263)

Source, Type of providers being trained	**Woodcock et al (1999), Kinmonth et al (1998), Kinmonth et al (1996), Nurse- and Dr-patient, but mainly on Nurse-patient** **A cluster of 3 articles on the same programme**
Setting, Sample, What was being Studied?	Primary care setting, General practitioners (trial 19, control 17), practice nurses (trial 29, control 20) and newly diagnosed type 2 patients (trial 141, control 108), Test the effect of training in patient-centred care of health professionals for patients with type 2 diabetes
Design	Longitudinal (over 2yr), RCT, Quantitative, The length of training 1.5 days and 2 optional follow-up half-days
Training on	Patient-centred care
Rationale for the training programme	Greater involvement of patients in clinical consultations can be beneficial, both physiologically and in terms of their view of consultations. Yet the use of patient-centred care relies upon practitioners. Thus a training course for practitioners was developed to increase patient involvement in consultations.
Methods of data collection	Professional beliefs, attitudes and behaviour were measured pre-trial, close-of-course and end-of-course), supported by patient reports of nurse behavour (questionnaire) 1yr after diagnosis (i.e, 1 yr. After the intervention).
No. of interaction and its analysis	No direct observation
Other data sets on the interaction	Practitioners' self report and data from patient reports of nurse behaviour, nurses delivery of important aspects of diabetes care
Patient Outcomes	1.Communication with practitioners, 2. satisfaction with treatment, 3. wellbeing, 4. weight, 5. triglyceride levels, 6. knowledge about diabetes, 7. quality of life, 8. HbA1c

HP model	Did not state
Major findings	- Trained nurses rated relative importance of patient-centred to professional-centred care as greater than comparison nurses. Trained nurses became less keen on the approach during the trial, and perceived time constraints persisted. - Patient diagnosed later in the study were less likely to recognise intervention materials. - Patient reported that important aspects of diabetes care were delivered more if their nurses had been trained in patient-centred consulting. Patient outcomes reflected better improvement in trained nurses' group with 1,2,3, but worse in 4,5,6 and non-significant results in 7 and 8.

Source, Type of providers being trained	**Pill et al (1999), Pill et al (1998), Nurse-patient and Dr-patient, but mainly on Nurse-patient in the 1999 paper** **A cluster of 2 articles on the same programme**
Setting, Sample, What was being Studied?	Primary care setting, general practitioners (trial 14, control 9), practice nurses (trial 18, control 15) and type 2 patients with poor control (trial 95, control 95), Evaluate the effect of training in a patient-centred intervention to modify professional behaviour and then to examine outcomes on type 2 patients (1998). Explore why the professionals' altered behaviour was poorly sustained despite initial enthusiasm among the nurses (1999).
Design	Longitudinal (3yr), RCT and a parallel process study using quantitative and qualitative methods to throw light on the "black box" of the consultation (1998, p230). The training course is at least two sessions (3 hrs).
Training on	Patient-centred intervention
Rationale for the training programme	"Outcomes can be improved by involving the patients in making decisions about their care and encouraging them to take responsibility." (p229). "The core message was that the patient should be allowed to air their personal concerns about their condition, to select which particular topic they felt most relevant for discussion and if appropriate, to set a specific target for themselves." (p230)
Methods of data collection	RCT: Pre- post-intervention questionnaire to patients (18m), From routing clinical audit collect data on Glyco-Hb, BMI, bld pressure, clinical complications, medicine use, smoking and alcohol use at recruitment, 9 and 18m later. Process study: Baseline interviews, rating of intervention, questionnaires, audio-taped interactions (8-9m), field work notes, post intervention debriefing interviews.
No. of interaction and its analysis	53 interactions from trial nurses, 20 tapes from trail doctors, (24 from control) Developed a quantitative coding system and also use a qualitative method: discourse analysis
Other data sets on the interaction	Nurses verbal reactions to the patient-centred approach and also its implementation during the intervention. Nurses verbal feedback on the use of the patient-centred approach in the post-intervention debriefing interviews.
Patient Outcomes	Physiological and functional endpoints

HP model	Did not state
Major findings	"Professionals adopted the innovative method with enthusiasm . . . but after 2 yrs only 19% continued to apply the method systematically." (1998, p229) "Nurses fell into two groups: those showing greater understanding of the principles underlying the approach and a more reflective attitude to their work; and those who adapted the simple technology provided to their usual consultation style. This variation was related to their perception of their role and their attitudes to diabetes care, especially the challenge posed by the "difficult patient". They were noticeably less willing to allow the patient freedom to decide what to do once diabetic control was deteriorating according to biochemical measures. It is concluded that the failure of the nurses to sustain behviour change over time stems from a basic dilemma, namely, what is the extent of my responsibility and how ought I to discharge it? (1999, p1492)

Source, Type of providers being trained	**Anderson et al (1995), Arnold et al (1995), Anderson et al (1991), Nurse-patient A cluster of 3 articles on the same programme**
Setting, Sample, What was being Studied?	Anderson 1995: A medical training center, 64 patients recruited from the community who had received basic diabetes education. To determine if participation in a patient empowerment programme would result in improved psychosocial self-efficacy and attitudes toward diabetes, as well as reduction in blood glucose levels. Arnold 1995: This is not a research paper, but it supplements the guidelines for facilitating the patient empowerment programme. Anderson 1991: Michigan Diabetes Research and Training Centre, 20 nurses and 2 dietitians, Designed, implemented and evaluated a training programme in using patient empowerment on patient outcomes
Design	Anderson 1995: RCT (wait-listed), longitudinal (18 wks), Quantitative Anderson 1991: Longitudinal, Quantitative, pre- post measures, The length of training 6 days. 3 days spent on adhering to a simulated diabetes care regimen, then another 3 days intensive skills-based workshop.
Training on	Patient empowerment: Taught a four step model (adapted from counseling psychology): First step, explore issues related to their diabetes care. Second, involve personalising the problem. Third, clarify their health-related values and establish goals. Fourth, help patients to develop and commit to a specific plan to achieve their goals.
Rationale for the Training programme	Anderson 1991 "The patient empowerment approach to diabetes education is intended to enable patients to make informed decisions about their own diabetes care and to be fully responsible members of the health-care team. Facilitating patient empowerment requires a specific set of skills and attitudes on the part of diabetes educators." (p584). "This type of psychological and social learning requires the kind of counseling skills that are not often included in the training of most health care professionals. (p585).
Methods of data collection	Anderson 1995: pre- post scales (including the Diabetes Empowerment Scale 37 items) and Hba1c. Anderson 1991: A video-taped simulation, Audio-taped interaction with a real patient (one pre- and post course taping), A diabetes attitude scale
No. of interaction and	Anderson 1991: 40 nurse-patient interactions, Developed a quantitative coding system to rate the response of nurses to patients'

its analysis	verbal comments
Other data sets on the interaction	1991: Nil
Patient Outcomes	Anderson 1995: HbA1c, DES scores, Patient autonomy, positive and negative attitude toward diabetes, compliance, impact of diabetes
HP model	Patient empowerment
Major findings	Anderson 1995: Improvement in DES and Hba1c Anderson 1991: The training programme resulted in significant improvements in counseling skills. The scores of DAS showed an increased in the valuing of patient autonomy.

This table displays health provider-patient interaction in the context of diabetes education

Source and Provider	**Theoretical framework, Design**	**Patient sample**	**Patient out-come**	**Direct observation, Interaction analysis**	**Other data sets about the interaction**	**Process characteristics**
Williams et al (2005) Doctor	Activation (a 20 minute activation programme), Randomised control trial	Total = 232, Activation group, n = 120; Education (control) group, n = 112	HbA1c, Audio-tape analyses	Audio-taped pre-post intervention doctor-patient consultations, raters used a 3 item scale to rate patients' participation.	No	Only one paragraph was devoted to report the process characteristics. It was reported that those patients in the activation group spoke longer and number of questions asked of doctors were more as compared with the pre-intervention tapes. Those who rated as actively involved in the consultation were also had better HbA1c. However, no effect of the activation intervention was found on HbA1c.
Heisler et al (2002) Doctor	Related to activation, Cross-sectional, Quantitative	431 patients of 25 Veterans' Affairs medical centers	Self reported understanding and adherence to self-manage-ment	No	One scale on provider participatory decision making and one scale on satisfaction	Doctors were not always willing to invite participation and patients were moderately satisfied with their communication style

Whittemore et al (2001) Nurse	Nil, A multi-method, interpretive approach	9 patients (women, type 2, not on insulin) of a nurse	A pre-post comparison of adaptation	Audio-taped, Claimed to use content analysis	Patient interview data	Minimal discussion apart from giving the evidence of the application of the items of the protocol for nurse coaching intervention in percentage
Koopman-van den Berg and van der Bijl (2001) Nurse	Self-efficacy, A two-stage exploratory study, quantitative (261 nurses) and qualitative (4 nurses)	4 educational programmes were observed using an observation list of 15 self-efficacy strategies	No	Direct observation, Used a self-developed observation list of 15 self-efficacy strategies, Content analysis was used	Survey on 261 nurses about their use of the 15 self-efficacy strategies, 2 nurse interviews, document analysis of two course manuals	"There was a considerable difference between the results of the questionnaire and the results of the observations. Nurse diabetes educators responding to the questionnaire said that they often used the performance accomplishments but this was not confirmed by the observations. Practicing skills and setting goals, for example, were not seen … Modelling was almost never used… nor was it observed. Discussion … of overall or specific task performances of others were commonly observed. … verbal persuasion techniques were often used" (p253).
Stamler et al (2001) Nurse	Enablement, Qualitative and quantitative	30 patients of a diabetic clinic	Mastery of Stress Instrument and the stress scale	No	Patient interview data	Thin data, an overall impression was given stating that patients found the classes helpful. Some patients who were categorised as having low mastery wanted more individual interaction with the nurse and smaller class size
Thorne and Paterson (2001) Doctors and nurses	Nil, Longitudinal, qualitative	22 type 1 patients who were experts	No	No	Patient interview data	Most providers were perceived as controlling, especially those working in hospital settings
Gagnayre et al (2000) Doctors	Nil, Cross-sectional, Quantitative	44 patients (4 consultations for each of the 11 doctor)	No	No	Doctors filled out a questionnaire after each encounter	Doctors spoke most of the time and keen to ask questions related to checking factual knowledge

Freeman and Loewe (2000) Health provider	Cross-sectional, Qualitative	22 patients of a range of clinicians (15)	No	Audio or video-taped (3), Content analysis	Participant observation, field notes, clinician iand patient interviews	Clinicians almost always focused entirely on managing blood sugar numbers. However, how this focus was communicated between clinicians and patients was not reported. Communication blocks were identified but how they happened were not described.
Bartz (1999) Doctor	Nil, Qualitative case study	9 Native American patients of a doctor	No	Audio-taped, Dr M was asked to interpret this data through interpersonal process recall and interpretive dialogue sessions.	An initial interview with Dr M, after replaying the interaction tape, Dr M was ask to interpret her interactions	From a piece of the interaction data reported in Table 5, one can have the impression that Dr M tended to use blocking behaviour when patients ventured into an area that she did not want to discuss or explore. "Dr M viewed her actual interactions with these patients as imbued with misunderstanding, mistrust, and disconnection." p601
Sarkadi and Rosenqvist (1999) Pharmacist, Nurse	Nil, Quantitative and qualitative	39 Swedish type 2 patients of 8 study circles	HbA1c	No	Patient questionnaire and interview Data	Both questionnaire and interview data sets pointed to the helpfulness of study circles. How the interaction process contributed to this perception was not explored
Dulmen et al (1997) Doctor	Patient centred care, Longitudinal, Quantitative	A medical specialist and his consecutive 18 patients (3 successive consultations from each patient)	Satisfaction Scale	Video-taped, Roter Interactional Analysis System and two items on patient-centredness	Patient satisfaction scale following each doctor-patient encounter	The doctor's utterances were instrumental (task oriented). There was little difference in the proportion of instrumental and affective interaction behaviour between patients and the doctor in the first consultation. In the second, the doctor made significantly more instrumental utterances than patients, whereas patients made more affective utterances. In the third, the doctor made more instrumental utterances, yet the proportion of affective utterances was the same for both parties

Hampson et al (1996) Doctor	Patient centred care, Longitudinal, quantitative	44 patients and their 2 doctors (2 successive consultations from each patient)	Beliefs and behaviour	Audio-taped, Roter Interactional Analysis System	Nil	Doctors spoke more than patients on both consultations. The average length of each visit was 17 minutes (88 consultations). The female doctor spoke more than the male doctor. The structure (style of communication) of the two consultations remained stable. In the typical consultation, giving information and positive talk constituted about three-quarters or more of what was said by both parties. The most likely discussed content of the encounter was diet and weight loss (>90%), monitoring of blood glucose (>80%), physical activity (~60%), and the timing and combination of two or more regimen components (>50%). The least likely discussed topic was foot care. "By studying two successive consultations, we discovered that, for any given patient, both the structure and content of the interaction varies considerably from visit to visit." (p56)
Basa and McLeod (1995) Doctor, nurse, dietitian	Nil, A single-subject repeated measures design, quantitative and qualitative	39 patients referred by family physicians to a diabetes specialty centre for care and education	Knowledge, attitudes, perceived quality of life, HbA1c	One researcher observed the education sessions, American national standards for diabetes patient education were used for comparison	For the process evaluation, the centre's documentation forms were also included in the review by the researcher, the American standards were used for comparison.	While thin data were reported in relation to the interaction during education, there are some interesting findings. "A combination of didactic and participatory strategies was used by the educators. Adult education principles were followed and verbal language in most situations was appropriate . . . However, on occasion common everyday language was sometimes inappropriate. For example, terms such as "drawing-up" . . . were not comprehended by some of the clients. This was verified by asking the clients after the education session what terms they did not understand." (p25).

Street et al (1993) Nurse	Activation, Quantitative	47 patients of a diabetes education centre in Texas and their 3 nurses	HbA1c	Audio-taped, developed and in part adapted a coding system used by Rost et al (1991)	Nil	"the means for nurses' and patients' communicative behaviours (Table 2) are . . . comparable with other studies of provider-patient communication (Roter et al 1988) . . . patients talked less than the nurses . . . rarely sought information . . . only occasionally engaged in decision making . . . and expressed little negative affect . . . These represented 2, 3, and 4% of their total utterances, respectively. Nurses, on the other hand, spent a considerable portion of the consultation using controlling behaviours . . . and offering technical information . . . >14% of the nurses' utterances were categorised as patient centred … on average, the nurses did not differ significantly from one another with regard to their use of controlling . . . informative . . . or patient-centred behaviours. However . . . suggest some variability in how the nurses individually communicated with different patients". (p717)
Rost et al (1991) Doctor	Activation, Randomisation	Experimental (n=31) and control (n=31) patients, 94 interactions recorded	Recall, satisfaction, HbA1c, functional status at 4 mon post discharge	Audio-taped, Developed a quantitative coding system to measure two aspects of patient communication behaviour: information seeking, decision making	Doctors' questionnaire on their satisfaction with the encounters on two aspects: interpersonal satisfaction satisfaction with the context	While the patient activation training programme (45 min) conducted by nurses was described in the text (five sentences), the process of this encounter was not studied in the investigation. Patients' communication behaviours in the experimental group were much better than those in the control. They asked more questions at discharge than control patients. There was a trend for experimental patients to demonstrate more decision making behaviours in the discharge interview.

Price (1989) Doctor, nurse	Nil, Qualitative analysis of video-taped provider-patient interviews	3 interactions (1 was doctor-patient and 2 were nurse-patient) were chosen from 19 patients and their interaction with their providers	No	Video-taped, Thematic content analysis, the trajectory of learning to manage diabetes was used to analyse the data.	Two in-depth interviews with patients	"Providers need to become sensitive to the experience of illness-as-lived in order to more accurately assess patient responses to management and to promote sustained efforts towards self-care." (p144). Patients' feedback showed that "they wanted their provider to know what they had tried and what did or did not seem to work for them." (p146)

Appendix 5: Health provider-patient interaction in health/patient education
This table displays nurse-client interaction of which health/patient education is a feature or focus

Source and setting	Aim	Design	Patient and nurse sample	Pt out-come	Observation and analysis method	Other data-sets	Process characteristics
The following six papers were published from a study in Finland with each paper focusing on a specific aspect for the report.							
Kettunen et al (2002), in a Finnish hospital	To examine the nurse-patient power relationship, in particular to describe in detail how patients' minimised power asymmetry during hospital counselling.	A qualitative design with 38 health counselling sessions videotaped	19 nurses and 38 patients	No	Video-taping (5 – 45 min), using an adaptation of conversation analysis	No	Questioning: nurses dominated with 78% of all questions while patients' questions amounted to only 22%. When patients questioned, the questioning confirmed that nurses were knowledgeable professionals. Patients generally accepted nurses' legitimate power to select topics because of her medical knowledge about care. Interrupting: Patients influenced the flow of conversation with interruption.
Kettunen et al (2001)	To illustrates practices that a nurse uses in order to empower patients.	A single case was selected for presentation	A video-taped nurse-patient health counselling session, nurse and patient interview after the taped session	No	Video-taping (14 min)	Nurse and patient interviews after the taped session	"This encounter included the following empowering practices: (1) opening the session in an encouraging and constructive manner, which improves the atmosphere, (2) tactful exploration when examining the patient's need for information and concerns for surgery, (3) active, power sharing listening, and (4) building up a positive vision of the future (p235)."
Poskiparta et al (2000)	To describe the main ways in which nurse counsellors' questions and advice are initiated, received, accepted or refused.	Same as Kettunen et al (2002)	Same as Kettunen et al (2002)	Same as Kettunen et al (2002)	Same as Kettunen et al (2002)	Same as Kettunen et al (2002)	Two types of health counselling models were found which fluctuated during the encounters from the analysis: reciprocal (empowerment) and non-reciprocal health counselling.

Kettunen et al (2000)	To describes nurse-patient communication, aiming at a description of patients' communicator styles.	Same as Kettunen et al (2002)	Same as Kettunen et al (2002)	Same as Kettunen et al (2002)	Video-taping, the analytic method was typology. This was used for achieving a multifaceted qualitative description of patient communication	Same as Kettunen et al (2002)	The analysis yielded seven communicator styles of patients: (1) quietly assenting, (2) emotionally expressive, (3) storyteller, (4) stoic observer, (5) inquisitive of detail, (6) dominant, and (7) critical self-observer. These styles suggest that patient participate in counselling discussions using a multitude of ways.
Poskiparta et al (1999)	To describe nurses' opinions of their communication skills in health counselling situations and to analyse the levels of reflectivity in their evaluations according to Mezirow.	A qualitative study	19 nurses participated in the research and evaluated their interaction with patients on video on two occasions half a year apart.	No	Nurses gave verbal feedback in an interview after videotaping, after which they read education materials, watched their counselling on video and wrote an evaluation of their communication skills. Content analysis was used.	No	"On Mezirow's scale (1-7), nurses' evaluations weighted heavily towards the lower levels of reflectivity (p3)".
Poskiparta et al (1998)	To explore questions that nurses ask patients in order to awaken reflection on their health behaviour in health counselling.	A qualitative design with 38 health counselling sessions videotaped	19 nurses and 38 patients	No	Video-taping, using an adaptation of conversation analysis	No	Generally, nurses used only a few reflective questions. Among those reflective questions used, most were future-oriented and introduced hypotheses.

Baggens (2001), Three child health centres of Sweden	To explore the content of the conversations and analyse its relationship to both the child health promotion programme and the question of each party	Did not state, 44 visits to these child health centres were audio-taped.	A total of 46 parents, 44 children, 10 siblings and 8 nurses participated in the study	No	Audio-taping (6 – 54 min), Content-oriented analysis that involved 4 steps: coding and generating topics, categorisation of topics, identifying the initiator and searching for regularities.	No	Most common issues were the physical aspects of child development, followed by situational matters and routine procedures of the centres. The nurses initiated most of the topics. The nurses' dominance was established with the help of the official child health promotion programme.
Aminoff and Kjellgren (2001), Four health care centres for hypertensive follow-ups in Sweden	To examine the nurse-patient interaction at follow-up appointments, of which the purpose was to transfer knowledge between both parties in order to empower patients	Did not state, 20 audio-recordings of follow-up appointments.	20 patients using consecutive sampling, four nurses who had undergone further preparation in education training.	No	Audio-taping (18 min), recorded by nurses, using both qualitative and quantitative methods of data analysis.	No	The average length of consultations was 18 minutes. Nurses initiated on average 20 topics while patients initiated 8. Lifestyle was the most common topic nurses initiated. However, comparing with previous studies on follow-ups with physicians, patients were more actively involved in interaction with nurses.
Kendall (1993), health visiting practice in UK	To explore the phenomenon of client participation in health visiting. This paper focus on reporting the audio-taped interaction.	A largely qualitative approach	15 health visitors and their five families, giving 62 audiotapes of the home visits	No	Audio-taping, using a modified approach to conversation analysis	A health visitor and her patient were interviewed, giving 75 pairs of interviews.	A total of 350 sequences of advice giving were identified. Only 17 out of the 350 (5%) were solicited by the client. When clients asked for advice, health visitors went straight into an advice giving sequence without exploring the client's perspective or problems.

Macleod Clark et al (1990), UK nurses who had attended a training programme on health education role of smoking cessation	To describe the process and assess the outcome of nurses attempts to help clients to stop smoking.	A case study design, 68 taped intervention	16 nurses initiated 68 health education interventions with 68 clients who smoked	Urinary cotinine, to validate whether they had quitted	Audio-taping (4 – 45 min), the analysis was conducted using a "skill-based analysis"	42 clients were followed up 1 year post-intervention, clients' uninary cotinine was taken	Tapes ranged in length from 4 to 45 min, most were between 10 and 20 min in length. In 58% of the tapes, nurses talked substantially more than clients, and sometimes it was twice as much. Nurses exercised considerable control of the conversation. In 21% of the tapes clients talked more.
Kristjanson and Chalmers (1990), nurse-client exchanges in community health nursing in Canadian public health department	To provide a rich description of nurse-client interactions in community health practice so that the components of the interactions can be more fully identified	A qualitative pilot study, 19 interactions were video-taped	5 nurses and their clients selected from nurses' care contexts	No	Video-taping, audio part was analysed by content analysis	Nurse and client interviews at the end of the video-taping	"The integrating conceptual schema identified as capturing the overall theme of interaction was labelled "creating common ground." This was defined as the process nurses and clients participate as they meet and work together in relation to a health/illness focus. … (p220)"

This table displays physician-client interaction of which health/patient education is a feature or focus

Source and setting	Aim	Design	Patient and physician sample	Pt out-come	Observation and analysis method	Other data-sets	Process characteristics
Sleath et al (1999) Outpatient setting in the United States	To answer 3 research questions on medication questions asked by physicians and patients and whether physicians perceive patients as being more assertive, interested, and irritating when they ask more medication questions.	One medical visit for each consenting patient was audiotaped from 11 outpatient settings	Analysis is restricted to 467 patients who had chronic illness (e.g., cardiac problems, diabetes, hypertension) were taking one or more continued medications and discussed medications with their physicians.	No	Audio-taping, Research assistants coded the medication variables from transcripts. The length of time spent discussing medications and the length of the encounter were measured in seconds. Questions about medications were defined and counted as any question asked by the patient or physician related to medications.	Both physicians and patients completed questionnaires about their encounter immediately after the visit.	Less than 1% of medication questions were open-ended. Physicians asked an average of nine medication questions whereas patients asked an average of one question. Physicians were more likely to ask questions of non-white patients Older patients asked more questions. If the physicians were younger, patients asked more questions. When new medications started, patients asked more questions. Physicians did not perceive patients as showing more signs of irritation if they asked more medication questions but rather showing more signs of assertiveness and interest.
Makoul et al (1995) General practice in England	To examine health promotion in primary-care context.	Five instruments were employed to collect data including a video	39 GPs in 22 different group practices participated in the study and on average each provided 23	No	271 video-taped consultations were analysed as they involved new prescriptions. Two groups of 20 medical students were trained as coders.	a patient questionnaire, a medical record review, a patient telephone	In relation to the prescription medications, doctors most often mentioned product name (78%) and instruction for use (87%). Patients were extremely passive. They rarely offered any opinion or initiated discussion about any aspect of the treatment. Interestingly, 24% of patient upon leaving

		analysis	patients for the study.		The authors developed a nominal coding system for this study.	interview, and a doctor questionnaire	the clinic perceived that they had got important topics discussed in the consultation, however the tapes revealed the fact that they had not been mentioned at all.
Wilson and McDonald (1994) General practice in England	To determine what proportion of health promotion activities (measurement of blood pressure and advice about smoking and alcohol) reported by the patient is recorded in the GP notes and to compare these methods of assessing health promotion with audio tape analysis	This is a secondary analysis of data obtained in a controlled trial of differing appointment lengths.	16 GPs from 10 practices and their 516 audio-taped consultations with patients were collected	No	Audio taping, the audio-tapes were listen to determine by verbal content or the sound of the procedure itself whether measurement of blood pressure and advice about smoking and alcohol took place	After the consultations, patients (n = 313) were given a questionnaire, the medical record was reviewed.	The sensitivity of the medical record in reporting smoking, alcohol and blood pressure was 31%, 29%, and 83%, respectively. Among the 313 patients who filled out the questionnaire, its sensitivity in reporting smoking, alcohol and blood pressure was 74%, 75% and 100%, respectively. The authors found many false negative entries in records and nil in patient questionnaires. The authors found more false positive entries in patient questionnaires as compared with the medical record.

Appendix 6

A nurse-led diabetes education centre in HK: Establishment and services

General description

This nurse-led diabetes education centre, set up in 1991, is a branch of the diabetes care unit, which is one of the 16 diabetes teams in Hong Kong. The centre locates within a major university-affiliated teaching hospital. The diabetes team consists of five diabetologists, five diabetes nurses, one dietician, one chiropodist, and one medical social worker. Under the governance of the Hospital Authority (which all public hospitals belong), the dietician, chiropodist, and medical social worker work across a range of diseases categories within the hospital to save resources. The Hospital Authority awarded this unit the accolade of The Best Health Care Team in 1999.

The unit published in 1998 A Manual for Management of Diabetes Mellitus: a Hong Kong Chinese Perspective to provide a handbook on diabetes care and education (Chan et al 1998). The Manual advocates the use of "patient empowerment: making the patient a member of the management team and emphasising the importance of self-care" as an approach to "therapeutic patient education" (Chan et al 1998, p30). Although the Hospital Authority does not provide any explicit guidelines in diabetes care and education, the Manual has been widely referenced.

While diabetes nurses of the education centre in some instances alter patients' treatment regime such as the dosage and frequency of insulin according patients' conditions and diabetologists reinforce the self-management behaviour of patients, the main role of the former is with diabetes self-management education and that of the latter is with diabetes medical care (Shiu and Wong 2002).

Diabetes nurses are active in clinical research activities. They have contributed significantly to the advancement of clinical diabetes care in Hong Kong through the development of clinical protocols. Having various types of research activities undergoing in the education centre is common to nurses and patients.

Apart from being a university teaching site since its establishment, the education centre has been a clinical teaching site for a 12-month part-time Professional Diploma Programme in Diabetes Management and Education since Jan 2002. This diploma programme was developed for health professionals including nurses and doctors working in Hong Kong and Mainland China. Diabetes nurses act as role models to programme participants. Nurses and patients are used to being observed during education activities.

Establishment

- The nurse-led diabetes education centre organisationally belongs to a diabetes care unit, which is made up of multidisciplinary members, providing specialist services to both in and out patients of a regional public hospital. The administrative and clinical leader of the diabetes education centre is a diabetes nurse specialist. She is directly accountable to a senior diabetologist who is also a professor of a university.
- The multidisciplinary team consists of 5 diabetologists, 4 diabetes nurses, 1 social worker, 1 dietitian, and 1 podiatrist. Diabetologists provide medical care while diabetes nurses conduct educational activities. The dietitian and podiatrist, working across a range of disease categories, play a supplementary role in diabetes education. The social worker, working across a range of disease categories, provides support to patients' financial and housing problems.
- A total of five diabetes nurses work within the nurse-led centre. Two of them are diabetes nurse specialists, one of which is the head of the centre.

Authority of diabetes nurses

- Diabetes nurses independently admit and discharge patients for diabetes education programmes accordingly to their judgment on patients' condition.
- Diabetes nurses could move patients' medical follow up appointments with diabetologists forward when patients' condition shows that this is necessary.
- Diabetes nurses phone up doctors of teams other than diabetes care to discuss patient care if the condition cannot wait till the next medical appointment.
- Diabetes nurses independently make decision on referring patients to social workers, dieticians and podiatrists for care and support. When referring patients to doctors other than the diabetes care team is considered as a necessity, it has to go through the diabetologist in charge of the patients.
- Diabetes nurses could alter insulin dosage and frequency according to patients' condition. However, they do not have the authority to alter oral hypoglycaemic agents or prescribe any medications.

Named nurse system

- Patients are allocated a named nurse once enrolled to an education programme of the centre. This is for continuity of care.
- Patients may contact their named nurse through the centre phone number during office hours. Patients are encouraged to call up for any clinical problems.
- Patients using insulin pumps or with serious problems (e.g., chronic depression) have their named nurse's pager number and can call up anytime for support.

- If restarting a diabetes education programme is necessary as decided by patients, any members of the diabetes care team or doctors of other teams, patients normally attend the same diabetes nurse for continuity of care.

Educational services to patients at the Diabetes Specialist Out-patient Clinic

The Diabetes Specialist Out-patient Clinic operates one day a week in the specialist out patient department located within the hospital compound.

- Newly diagnosed patients:

  Diabetes nurses provide an initial overview of diabetes self-management to these patients. Patients and nurses then agree upon the timing of the first appointment for a diabetes education programme to be held in the nurse-led education centre.
- Walk-in clinic:

  Diabetes nurses provide a walk-in clinic for patients who perceive a need for educational advice. Thus type of encounters may be one-off or lead to the restart of another education programme.

Educational services to in-patients

- Diabetes nurses pay daily visit to hospital wards to give advice to in-patients on diabetes self-management. When in-patients are about discharge, diabetes nurses and patients agree upon the timing of the first appointment for an education programme to be held in the nurse-led education centre.

Diabetes education programmes conducted at the centre

The centre offers a range of education programmes. While some are one to a group teaching, some are one-to-one health interviews. The programmes are by appointments apart from the last one.

- For newly diagnosed patients:

  An initial group teaching session (last for 2 to 3 hours for 4 patients and their main carers) provides an overview of diabetes self-management. Separate session is arranged for patients on oral hypoglycaemic agents and insulin-therapy. Group teaching is followed by individual health interviews usually every three monthly until the blood glucose control is stable. Patients are then discharged. Nurses decide a more frequent encounter pattern if the control is poor.
- For type 2 patients starting insulin:

  Normally these patients have been attending the specialist out patients clinic for medical care. An initial group teaching session (last for 2 to 3 hours for 4 patients and their main carers) provides an overview of diabetes self-management. This is followed by individual interviews usually every three monthly until the blood glucose control is stable. Nurses decide a more frequent encounter pattern if the control is poor.

- For patients starting insulin pump therapy:
  Individual health interviews usually every one monthly until the blood glucose control is stable and patients are confident with the use of insulin pump. The follow-up frequency is then changed to every three monthly for continuous monitoring.
- For paediatric patients:
  Individual health interviews usually every one monthly until the blood glucose control is stable.
- For diabetic patients with serious health problems (e.g., depression, acute renal failure):
  Individual health interviews usually every one monthly until the blood glucose control is stable and other conditions are stable.
- For patients referred by doctors because of poor control:
  These patients usually have previously attended diabetes education programmes. Upon referral, a diabetes nurse specialist conducted an initial assessment on the patient to decide the urgency and allocated a mutually convenient time for the first appointment. This programme takes the format of individual health interview. Normally, patients attend the named nurse for continuity of care, unless the previous encounter was over two years. In this case, one of the two nurse specialists take over the patients for care. The name nurse decides the interval of subsequent encounters. Usually, the pattern is every one to three monthly until the blood glucose is stable. This is the programme selected for the case study.

- For walk-in patients:

Diabetes nurses provide squeese-in appointments for any patients while attending medical follow-ups and perceiving a need for educational advice. These consultations can be a one-off encounter or may lead to the restart of an education programme.

Educational services to colleagues and community

- The nurse-led centre has been a training centre for nurses and doctors undertaking a professional diploma course on diabetes care and education since 2002. Nurses act as role model to demonstrate the delivery of diabetes education to course participants.
- Diabetes nurses regularly organise and conduct seminars for colleagues to share their experience in diabetes education.
- Diabetes nurses co-organise and conduct seminars with community groups (e.g., Diabetes Mutual Aid, Community Rehabilitation Network) to the general public to promote healthy lifestyle and enhance knowledge on diabetes self-management.

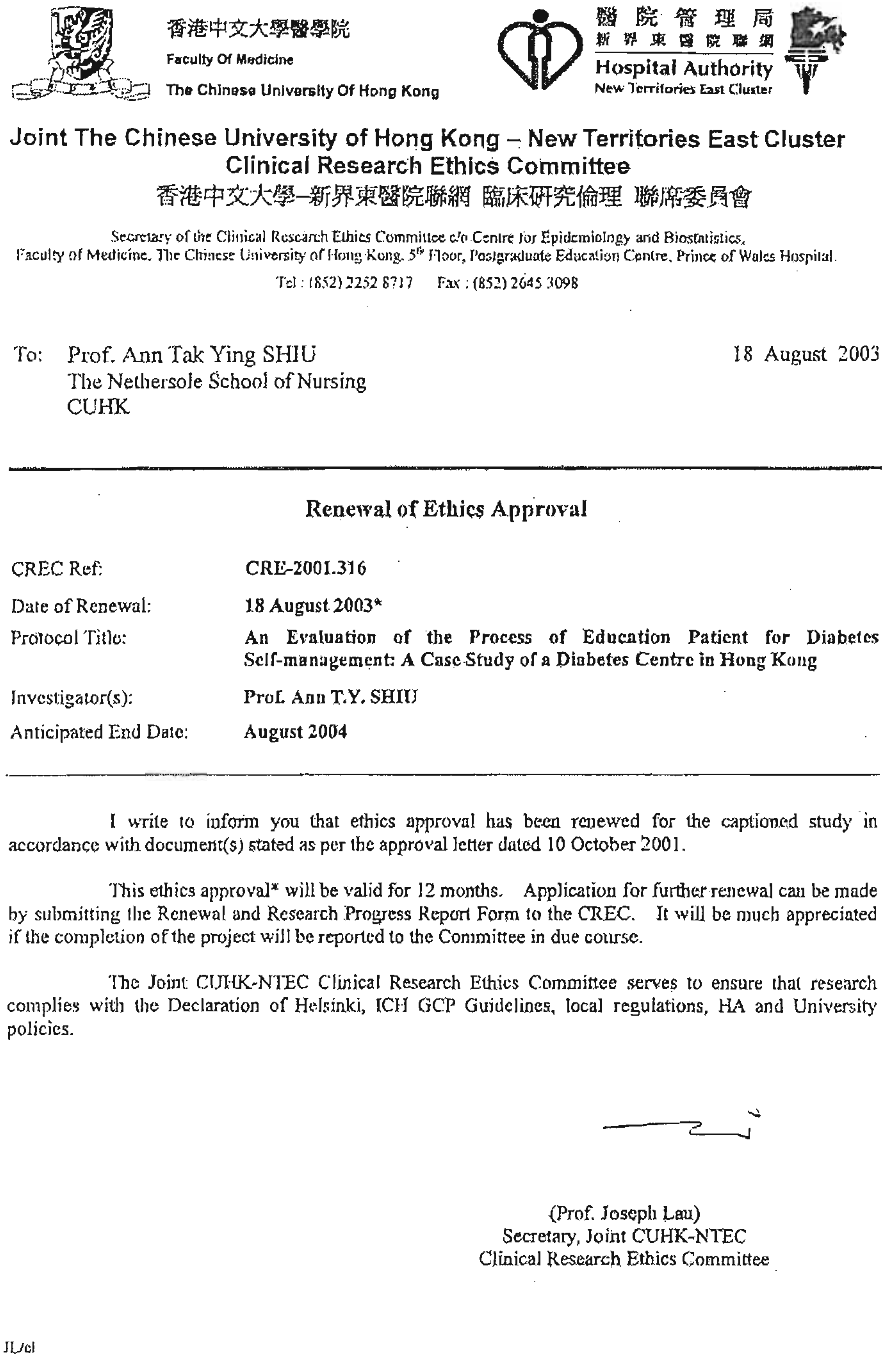
Cost for attending diabetes education

- HK$ 60 (approximately five sterling pounds) per nurse-patient encounter for out-patients, the same payment as a medical follow up appointment.
- No charge for any services to in-patients

Current patient load

- The centre provided approximately 10,000 consultations to patients (nurse-patient interaction episodes) in the year Apr 2002 to Mar 2003. Within this year the centre also provided approximately 4,000 telephone consultations (only noting those ten minutes or above). This has been increased steadily in the past ten years, according to the nurse-in charge.
- In the year 2002 to 2003, the average caseload was 8 patients per nurse per day. The number of telephone consultations was 3 patients per nurse per day, whereas the average patient call in for advice was 3 per day by each nurse.

Appendix 7: Letters of approval (Ethics and Access)



香港中文大學醫學院
Faculty Of Medicine
The Chinese University Of Hong Kong

醫院管理局
新界東醫院聯網
Hospital Authority
New Territories East Cluster

Joint The Chinese University of Hong Kong – New Territories East Cluster
Clinical Research Ethics Committee
香港中文大學—新界東醫院聯網 臨床研究倫理 聯席委員會

Secretary of the Clinical Research Ethics Committee c/o Centre for Epidemiology and Biostatistics,
Faculty of Medicine, The Chinese University of Hong Kong, 5th Floor, Postgraduate Education Centre, Prince of Wales Hospital.
Tel : (852) 2252 8717 Fax : (852) 2645 3098

To: Prof. Ann Tak Ying SHIU
The Nethersole School of Nursing
CUHK

18 August 2003

Renewal of Ethics Approval

CREC Ref:	**CRE-2001.316**
Date of Renewal:	**18 August 2003***
Protocol Title:	**An Evaluation of the Process of Education Patient for Diabetes Self-management: A Case Study of a Diabetes Centre in Hong Kong**
Investigator(s):	**Prof. Ann T.Y. SHIU**
Anticipated End Date:	**August 2004**

I write to inform you that ethics approval has been renewed for the captioned study in accordance with document(s) stated as per the approval letter dated 10 October 2001.

This ethics approval* will be valid for 12 months. Application for further renewal can be made by submitting the Renewal and Research Progress Report Form to the CREC. It will be much appreciated if the completion of the project will be reported to the Committee in due course.

The Joint CUHK-NTEC Clinical Research Ethics Committee serves to ensure that research complies with the Declaration of Helsinki, ICH GCP Guidelines, local regulations, HA and University policies.

(Prof. Joseph Lau)
Secretary, Joint CUHK-NTEC
Clinical Research Ethics Committee

JL/cl

THE CHINESE UNIVERSITY
OF HONG KONG
FACULTY OF MEDICINE
DEPARTMENT OF NURSING
RM. 329, TSANG SHIU TIM BUILDING,
UNITED COLLEGE
SHATIN, N.T. HONG KONG

香港中文大學
醫學院護理學系
聯合書院曾肇添樓三二九室
香港・新界・沙田

Please Return to:

Dr [redacted]
Chief of Service
(Medicine and Therapeutics)
[redacted] Hospital
[redacted]

Shiu Tak Ying, Ann
Assistant Professor
Department of Nursing
The Chinese University of Hong Kong
Rm. 325, Tsang Shiu Tim Building
Shatin, Hong Kong
Tel: (852) 2609 7472
Fax: (852) 2603 5935
E-mail: annshiu@cuhk.edu.hk
13 May 1999

Dear Dr Lui,

Application for approval to conduct a research project:
An evaluation of the process of educating patient for diabetes self-care management: A case study of a diabetes centre in Hong Kong

I am writing to apply for your approval to carry out the above proposed study in the Diabetes and Endocrine Centre of the [redacted] Hospital. I attach a summary of the research proposal for your reference.

Professor [redacted], the head of the Diabetes and Endocrine Centre and Ms [redacted], the nurse specialist in-charge of the centre have agreed in principle to have this study conducted in the centre. After your approval, I will seek informed consent from all subjects involved in the data collection process. Confidentiality of personal data and anonymity of the hospital will be ensured. Ethical approval is being sought from the Ethics Committee of the Chinese University of Hong Kong. Data collection will be mainly conducted by myself. It will start in the year 2000 lasting for approximately two years.

I am looking forward to your reply and very happy to answer questions about this proposed study.

Yours sincerely,

SHIU

Shiu Tak Ying, Ann

cc Professor [redacted] & Ms [redacted]

Approval given. Thanks.

DR. [redacted]
Chief of Service
Department of Medicine
[redacted] Hospital
[redacted], Hong Kong

15/5/99

Email: Nursing@cuhk.hk TELEX: 50301 CUHK HX TELEPHONE: (852) 2609 7475 FAX: (852) 2603 5935

"Serving the community through quality education, caring practice, and advancement of health sciences."

THE CHINESE UNIVERSITY
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AND ADVANCEMENT OF HEALTH SCIENCES

Our Reference : FM/C/13

Your Reference :

12 June 1999

Ms Ann TY Shiu
Dept. of Nursing
CUHK

Dear Ms Shiu,

I write to inform you that ethical approval has been given for you to engage in the project named below:

Project Title:	**"An evaluation of the process of educating patient for diabetes self-care management: A case study of a diabetes centre in Hong Kong" (ref. No. CRE-9148)**
Investigator(s):	**Ms Ann TY Shiu (Assistant Professor), Dept. of Nursing, CUHK**
Location of Study:	[redacted] **Hospital**
Duration:	**2 years**
Conditions by Clinical Research Ethics Committee (if any):	**Nil**

It will be much appreciated if the completion of the project will be reported to the Committee in due course.

Yours sincerely,

Andrew Chan
Secretary
Clinical Research Ethics Committee

Dean : Professor J.C.K. Lee MBBS, PhD, FRCPC, FCAP, FRCPA, FRCPath, MIAC, FHKAM (Pathology)
院長 ：李川軍教授 Tel 電話：(852) 2609 6870 E-mail 電子郵件：joelee@cuhk.edu.hk

Planning Officer : Mr. Andrew Chan BA, CertEdMgt
策劃主任 ：陳燿鏞先生 Tel 電話：(852) 2609 6788 E-mail 電子郵件：yungchan@cuhk.edu.hk

Appendix 8: Roles and responsibilities of research assistants

It is important to clarify the roles of five part-time research assistants (RAs) employed in this study. They provided assistance with the mechanical and repetitive aspects of the quantitative data collection and data management. This writer provided on the job training, working procedures and continuous monitoring of the work being undertaken. The RAs in this study did not undertake the work for the purposes of gaining academic qualifications. The RAs were paid on an hourly basis and signed an appointment letter, in which they consented to keep confidentiality of all data involved in the service they provided.

One RA is a registered nurse. She was employed to assist quantitative data collection designed by this writer. Her involvement included liaising with the case study centre and contacting potential patient participants to obtain consent, administering the pre-post education questionnaires, preparing the audio-taping facilities for the ease of the nurse participants to do the taping, collecting the tapes from the centre, making photocopies of nursing documentation and retrieving HbA1c results. Training and monitoring of the administration of questionnaires were provided by this writer. Since the RA assistance involved telephone contact with patients, it was considered appropriate to employ a RA with nursing background. This RA was paid HK $100 (approximately eight pound sterlings) per hour of her service.

Three RAs (undergraduate students) transcribed taped interactions and interviews into Chinese Word documents. They were trained to transcribe verbatim the taped data using the structured format and symbols designed by this writer. The accuracy of transcription was checked and ensured when this writer conducted the analysis. They were paid HK $50 (approximately four pound sterlings) per hour of the service they provided.

The fifth RA, who has a master's degree in psychology, was employed to help with the RIAS coding. Before providing on the job training to the RA, this writer coded four series (20%) of the nurse-patient interaction data to learn the RIAS coding technique. This writer then trained the RA according to the RIAS Manual (www.RIAS.org 2000). The RA and this writer independently coded one series of the data, which achieved an initial inter-coder reliability of 75%. This writer and the RA discussed the issues leading to differences in some assigned RIAS codes, including "Agreement" and "Back-channel". After the discussion, this writer and the RA independently coded another two series of interaction data and an inter-coder reliability of 90% was obtained. From then onwards, the RA coded the rest of the interaction data (13 series, 65%).

Roter (www.RIAS.org 2000) regards the RIAS coding as mechanical and time consuming (four hours of coding time for each hour of taped data). This writer considered that a RA with psychology background and training was appropriate for the job. This could free this writer for the qualitative analysis of the same data set using the ESAS. This RA was paid HK $100 per hour of her service.

In addition, the fifth RA also provided assistance with coding two series of the nurse-patient interaction data using the ESAS developed by this writer. The result of her coding was used for comparison with that obtained by this writer to determine the reliability of the ESAS. On the job training was provided on the theoretical underpinnings of the ESAS and its use in coding before the RA conducted the coding.

Appendix 9: The analysis scheme for education strategies (ESAS)

Descriptive label for the strategies (function) and the sub-codes	Codes #
1. Assessing felt needs (Explore expectations for focusing the encounter)	ED or EM-AFN
For information	AFN-info
For emotional support	AFN-emot
For environmental support	AFN-env
2. Assessing self-management ability	ASM
*Understanding the reason for referral	ASM-ref
Understanding basic concepts and their relationship	ASM-und
Recall of facts	ASM-recall
*Self report on self-management behaviour	ASM-s-rep
*Demonstration of self-management behaviour	ASM-demo
*Self-evaluation of self-management behaviour	ASM-s-eval
*3. Assessing disease progress	ADP
Medical history	ADP-hist
Glycaemic control from HBA1c readings	ADP-HbA1c
Glycaemic control from blood glucose self-monitoring	ADP-BGSM
Diabetes complications	ADP-cx
Reaction to drugs	ADP-drug-re
Other indicators, eg. Wt, ft condition, injection sites, BP, lab results	ADP-oth
4. Assessing motivation (Explore existing beliefs and attitudes to seek necessary modification)	EM-AM
5. Assessing personal (various skills and beliefs) and environmental resources (Explore resources for assuming self-management)	EM-APER
Psychomotor skills	APER-psym-s
Self-regulatory skills	APER-sr-s
Diabetes specific psychosocial skills	APER-psy-s
Environmental circumstances	APER-env
6. Providing feedback	FB
On self-management ability	FB-smgt
*On disease progress	FB-d-p
7. Traditional teaching (Build self-management knowledge and skills)	PR-T
Giving information	T-info
Demonstration	T-demo
*Guided practice	T-gu-p
8. Prescribing behaviour change	PR-PBC
9. Persuasive communication (Act on beliefs and attitudes)	PR-PC
10. Enquiry-based teaching (Build self-management knowledge and skills)	ED or EM-E
Giving information	E-info
Demonstration	E-demo
*Guided practice	E-gu-p

11. Values clarification (Clarify beliefs and values to facilitate voluntaristic decision making by means of counselling skills)	ED or EM-VC
12. Counselling (Facilitate understanding of self-management concepts and their relationship, and various competencies for empowered choice)	EM-C
Self-management knowledge	C-smgt-k
Psychomotor skills	C-psym-s
*To suggest behaviour change	C-beh-c
Self-regulatory skills	C-sr-s
Diabetes specific psychosocial skills	C-psy-s
*13. Facilitating the venting of negative emotion	EM-FV
14. Anticipatory guidance	AG
15. Critical consciousness raising (Develop awareness on issues influencing self-management by means of counselling skills)	EM-CCR
16. Modelling (Act on attitude and intention)	EM-Mod
Beliefs about control and self-efficacy	Mod-bel
Values promotion	Mod-val
17. Experiential learning activities (e.g., simulation, gaming or role play to develop various skills)	ED or EM-ELA
Decision-making skills (to facilitate voluntaristic decision making)	ELA-dec-m
Self-regulatory skills (to facilitate empowered choice)	ELA-sr-s
Diabetes specific psychosocial skills (to facilitate empowered choice)	ELA-psy-s
18. Maximising memory	MM
By repeating main points	MM-repe
By providing memory aids	MM-aids
19. Negotiating a mutually acceptable contract (Facilitate transfer of intention to action)	EM-NC
*20. Negotiating sustainable behaviour	PR -NSB
21. Moblising support (Facilitate choice or behaviour change)	EM-MS
Environmental	MS-env
Social	MS-soc

* Strategies arose inductively from test coding

The master codes of ED, PR or EM denote educational model, preventive model or self-empowerment model, respectively. Strategies without a master code are regarded as being ideologically neutral.

Second step revised list

Descriptive label for the general categories, their function (in bracket) and the individual codes	Codes #
1. Assessing felt needs (Explore expectations for focusing the encounter)	ED or EM-AFN
For information	AFN-info
For emotional support	AFN-emot
For environmental support	AFN-env
2. Assessing self-management ability	ASM
*Understanding the reason for referral	ASM-ref
Understanding basic concepts and their relationship	ASM-und
Recall of facts	ASM-recall
*Self report on self-management behaviour	ASM-s-rep
*Demonstration self-management behaviour	ASM-demo
*Self-evaluation of self-management behaviour	ASM-s-eval
*3. Assessing disease progress	ADP
Medical history	ADP-hist
Glycaemic control from HBA1c readings	ADP-HbA1c
Glycaemic control from blood glucose self-monitoring	ADP-BGSM
Diabetes complications	ADP-cx
Reaction to drugs	ADP-drug-re
Other indicators, eg. Wt, ft condition, injection sites, BP, lab results	ADP-oth
4. Assessing motivation (Explore existing beliefs and attitudes to seek necessary modification)	EM-AM
5. Assessing personal (various skills) and environmental resources (Explore resources for assuming self-management)	EM-APR
Psychomotor skills	APR-psym-s
Self-regulatory skills	APR-sr-s
Health and life skills	APR-h/l-s
Environmental circumstances	APR-env
6. Providing feedback	FB
On self-management ability	FB-smgt
*On disease progress	FB-d-p
7. Traditional teaching (Build self-management knowledge and skills)	PR-T
Giving information	T-info
Demonstration	T-demo
*Guided practice	T-gu-p
8. Prescribing behaviour change	PR-PBC
9. Persuasive communication (Act on beliefs and attitudes)	PR-PC
10. Enquiry-based teaching (Build self-management knowledge and skills)	ED or EM-E
Giving information	E-info
Demonstration	E-demo
*Guided practice	E-gu-p

11. Values clarification (Clarify beliefs and values to facilitate voluntaristic decision making by means of counselling skills)	ED or EM-VC
12. Counselling (Facilitate understanding of self-management concepts and their relationship, and skills and various competencies for empowered choice)	EM-C
Self-management knowledge	C-smgt
Psychomotor skills	C-psym-s
*To suggest behaviour change	C-beh/c
Self-regulatory skills	C-sr-s
Health and life skills (including general social skills and diabetes-specific psychosocial skills)	C-h/l-s
*13. Facilitating the venting of negative emotion	EM-FV
14. Anticipatory guidance	AG
15. Critical consciousness raising (Develop awareness on issues influencing self-management by means of counselling skills)	EM-CCR
16. Modelling (Act on attitude and intention)	EM-Mod
Beliefs about control and self-efficacy	Mod-bel
Values promotion	Mod-val
17. Experiential learning activities (e.g., simulation, gaming or role play) to develop various skills	ED or EM-ELA
Decision-making skills (to facilitate voluntaristic decision making)	ELA-dec-m
Self-regulatory skills (to facilitate empowered choice)	ELA-e/s-sr-s
Health and life skills (ie. Diabetes-specific psychosocial skills, to facilitate empowered choice.)	ELA-e/s-h/l-s
18. Maximising memory	MM
By repeating main points	MM-repe
By providing memory aids	MM-aids
19. Negotiating a mutually acceptable contract (Facilitate transfer of intention to action)	EM-NC
*20. Negotiating sustainable behaviour	PR-NSB
21. Moblising support (Facilitate choice or behaviour change)	EM-MS
Environmental	M/S-env
Social	M/S-soc
22. Acting as an advocate of environmental coercion (the healthy choice as the only choice)	PR-Advocate-c
23. Acting as advocate of environmental and social support (Facilitate supportive physical and social and environment to make the healthy choice as the easy choice)	EM-Adovcate-s

*Arose from test coding

The master codes of ED, PR or EM denote educational model, preventive model or self-empowerment model, respectively. Strategies without a master code are regarded as being ideologically neutral.

Start list

Descriptive label for the general categories, their function (in bracket) and the individual codes	Codes #
1. Assessing felt needs (Explore expectations for focusing the encounter)	ED or EM-A/FN
For information	A/FN-info
For emotional support	A/FN-emot
2. Information needs assessment (Assess needs for information to decide next education methods)	A/I
Assessing understanding	A/I-und
Assessing learning and recall of facts	A/I-l/r
3. Assessing progress in self-management behaviour (Assess progress in acquiring self-management behaviour)	A/SM
4. Assessing motivation (Explore motivation, i.e. existing beliefs and attitudes, to facilitate decision making for healthy choice)	ED or EM-A/M
5. Assessing personal and environmental resources (Explore resources for assuming self-management)	EM-A/R
Psychomotor skills	A/ R-psym-s
Self-regulatory skills	A/ R-sr-s
Diabetes specific psychosocial skills	A/R-psy-s
Environmental circumstances	A/ R-env/c
6. Values clarification (Clarify beliefs and values to facilitate voluntaristic decision making)	ED or EM-V/C
7. Critical consciousness raising (Develop awareness on issues influencing self-management)	EM-CCR
8. Traditional teaching: (Build self-management knowledge base)	PR-T
Information	T-info
Demonstrating skills	T-dem/s
Prescribing behaviour change	T-pres/beh
9. Enquiry-based teaching	ED or EM-E
Information	E-info
Demonstrating skills	E-dem/s
10. Counselling (Develop self-management knowledge and abilities)	EM-C
On self-management behaviour	C-smgt
To suggest behaviour change	C-beh-c
To help ventilate negative feelings	C-vent
11. Persuasive communication (Act on beliefs and attitudes)	PR-P/C
12. Modelling (Act on attitude and intention)	EM-Mod
Beliefs about control and self-efficacy	Mod-bel
Values promotion	Mod-val
13. Diabetes specific psychosocial skills teaching (Develop beliefs about control and efficacy)	EM-psy-s-t

14. Maximising memory	MM
By repeating main points	MM-repe
By providing memory aids	MM-aids
15. Negotiating a contract (Facilitate transfer of intention to action)	EM-N/C
16. Simulation, gaming and role play (Facilitate voluntaristic decision-making and choice)	ED or EM-S/G/R
Psychomotor skills	S/G/R-psym-s
Self-regulatory skills	S/G/R-sr-s
Diabetes specific psychosocial skills	S/G/R-psy-s
17. Moblising support (Facilitate choice or behaviour change)	EM-M/S
Environmental/structure	M/S-env
Social	M/S-so
18. Acting as an advocate of environmental coercion (the healthy choice as the only choice)	PR-Adv-coer
19. Acting as advocate of environmental and social support (Facilitate supportive physical and social and environment to make the healthy choice as the easy choice)	EM-Adv-supp
20. Anticipatory guidance	AG
21. Providing feedback	FB

The master codes of ED, PR or EM denote educational model, preventive model or self-empowerment model, respectively. Strategies without a master code are regarded as being ideologically neutral.

Appendix 10: Instruments

Pre-education programme questionnaire

Demographic and clinical data sheet Code___________

1. How long have you been diagnosed as affected by diabetes? _________Years
2. Treatment modality
   - ☐ Oral hypoglycaemic drugs only
   - ☐ Oral hypoglycaemic drugs + once daily insulin injection
   - ☐ Oral hypoglycaemic drugs + two insulin injections per day
   - ☐ Oral hypoglycaemic drugs +four insulin injections per day
   - ☐ Only insulin injection (frequency per day ____)

   How long ago did you start insulin treatment? ________Years
3. ☐ Type 1 ☐ Type 2
4. Diabetes complications (as informed by doctors)
   - ☐ Nil
   - ☐ Retinopathy
   - ☐ Neuropathy
   - ☐ Nephropathy
   - ☐ cardiac vascular problems
   - ☐ cerebral vascular problems
   - ☐ Others (Specify___________)
5. Did you attend diabetes education programme?
   - ☐ Yes, ____years ago
   - ☐ No, this is the first
6. Education level
   - ☐ No formal education
   - ☐ Primary
   - ☐ Secondary
   - ☐ Matriculation or with diploma
   - ☐ University
   - ☐ Post graduation
7. Employment
   - ☐ student
   - ☐ Full-time
   - ☐ Part-time
   - ☐ Piece-meal worker
   - ☐ Retired
   - ☐ Home maker and not seeking jobs
   - ☐ Home maker and seeking jobs
   - ☐ Unemployed and not seeking jobs
   - ☐ Unemployed and seeking jobs
8. ☐ Male ☐ Female
9. Marital status
   - ☐ Single
   - ☐ Married
   - ☐ Separated
   - ☐ Divorced
   - ☐ Widowed
10. Age ________Years
11. Household income
    - ☐ Less than or equal $5,000
    - ☐ $5,001 - $10,000
    - ☐ $10,001 - $15,000
    - ☐ $15,001 - $20,000
    - ☐ $20,001 - $25,000
    - ☐ $25,001 - $30,000
    - ☐ $30,001 - $35,000
    - ☐ $35,001 - $40,000
    - ☐ More than $40,000
    - ☐ On public assistance

To what extent do you think you have adequate knowledge of diabetes self-management?

1	2	3	4	5	6	7	8	9	10
Very minimal									Very adequate

Diabetes Empowerment Scale HK Version (20 items)

In general, I believe that I:	Strongly Agree	Agree	Neutral	Disagree	Stron Disag
1. ...can choose realistic diabetes goals.	( )	( )	( )	( )	(
2. ...know which of my diabetes goals are **most** important to me.	( )	( )	( )	( )	(
3. ...am able to turn my diabetes goals into a workable plan.	( )	( )	( )	( )	(
4. ...can reach my diabetes goals once I make up my mind.	( )	( )	( )	( )	(
5. ...know which **barriers** make reaching my diabetes goals more difficult.	( )	( )	( )	( )	(
6. ...can **think** of different ways to overcome barriers to my diabetes goals	( )	( )	( )	( )	(
7. ...can try out different ways of overcoming barriers to my diabetes goals.	( )	( )	( )	( )	(
8. ...am able to decide which way of overcoming barriers to my diabetes goals works best for me.	( )	( )	( )	( )	(
9. ...can cope with feeling down about having diabetes.	( )	( )	( )	( )	(
10. ...know the ways that having diabetes causes stress in my life.	( )	( )	( )	( )	(
11. ...know the **positive** ways I cope with diabetes-related stress.	( )	( )	( )	( )	(
12. ...can cope well with diabetes-related stress.	( )	( )	( )	( )	(

13. ...know what things support me in caring for my diabetes.	( )	( )	( )	( )	(
14. ...know where I can get support for having and caring for my diabetes.	( )	( )	( )	( )	(
15. ...can ask for support for having and caring for my diabetes when I need it.	( )	( )	( )	( )	(
16. ...know how to get the facts I need to make diabetes care choice that are right for me.	( )	( )	( )	( )	(
17. ...know enough about diabetes to make self-care choices that are right for me.	( )	( )	( )	( )	(
18. ...know enough about myself as a person to make diabetes care choices that are right for me.	( )	( )	( )	( )	(
19. ...know how to learn more about myself as a person to make diabetes care choices that are right for me.	( )	( )	( )	( )	(
20. ...am able to figure out if it is worth my while to change how I take care of my diabetes.	( )	( )	( )	( )	(

Post-education programme questionnaire Code__________

To what extent do you think you have adequate knowledge of diabetes self-management?

1	2	3	4	5	6	7	8	9	10

Very minimal Very adequate

Diabetes Empowerment Scale HK Version (20 items)

(The same as that in the pre-education programme questionnaire)

Health Care Climate Questionnaire

Key 1=strongly disagree, 2=moderately disagree, 3=slightly disagree, 4=neutral, 5=slightly agree, 6=moderately agree, 7=strongly agree

	Item	1	2	3	4	5	6	7
1	I feel that my diabetes nurse has provided me with choices and options.							
2	I feel understood by my diabetes nurse.							
3	My diabetes nurse conveys confidence in my ability to make changes.							
4	My diabetes nurse encourages me to ask questions.							
5	My diabetes nurse tries to understand how I see things before suggesting a new way to do things.							

Appendix 11: Interview guides

Patient interview guide:

1. Patients' expectation of the nurse-patient education encounters
   - What was the reason of attending?
   - Was your expectation fulfilled, and if so, why?
2. The meaning of diabetes self-management
   - Probe for personal meaning, responsibility and most important ability required
3. Views on the education process and development of important abilities
   - Probe for sense of control and development of important abilities; also probe for reasons of giving high scores on nurse supporting autonomy (HCCQ)
4. Education preferences
5. Relationship with the nurse
   - Probe for example of the perceptions
6. Views on equal partners
   - Probe for whether it is workable in a Chinese context
7. Desirable skills and attitudes of diabetes nurses
8. Perceptions on achieved outcomes

This is the end of the interview, is there anything about diabetes education you would like to add?

Nurse Interview Guide:

1. Reasons for doctor's referral
2. The meaning of self-management
   - Probe for indicators of good self-management
3. Roles and responsibilities in diabetes educating
4. Communication styles of nurses and patients
   - Probe for examples causing the perceptions
5. Education content and strategies
   - Probe for elements of the education process nurses perceive as facilitating self-management, also what they expect from patients afterwards
6. Theoretical underpinnings of education practice
   - What are they? Effects on patients?
7. Meaning of patient empowerment and equal partnership
   - Probe for the meaning of patient empowerment as stated in the Manual
8. Relationship with patients
   - Probe for example of the perceptions, the importance of equal partners
9. Skills and attitudes required of diabetes nurses

This is the end of the interview, is there anything about diabetes education you would like to add?

Appendix 12: Analysis of field notes

Table: Time schedule of the nurse interviews

Date	Period	Duration of stay (hour)	Nurse interviewed	Length of the interview (min)
2/1/04	4-6 pm	2	N 5	66 (stopped)
9/1/04	9:50-10:15 am	1.5	N 2	59
12/1/04	3:45-5:15 pm	1.5	N 1	96
13/1/04	3:15-5 pm	1.75	N 3	83
15/1/04	1:40-4:30 pm	3	N 5	30 (continued)
			N 4	72

Physical setting

The centre was converted into a centre from a previous nurse residence. The decoration and setting was an attempt to make it home like. The centre was approximately 2000 square feet. The main entrance opened into a living room (approximately 400 square ft). On one side of the living room close to the main entrance was a patient reception counter. A receptionist, a hospital care assistant, took care of registering patients' attendance. The living room was partitioned into two equal size areas by a long sofa. One area got a long dining table in the middle surrounded with eight chairs. This area was set aside for the purpose of giving health talks and holding meetings. The other area got a TV set and a video deck as well as a low table with pot plants and magazine on the top. By the side of the TV set were a drinking water dispenser and a scale for taking body weight and height. The centre got a kitchen (approximately 100 square ft), which was used as a staff common room and the workman's work station. Walking through the door from the kitchen directed into a small room (approximately 50 square ft), which was converted from a maid's room into an telephone operator's room. The centre has got a large balcony (approximately 100 square ft), which was converted into the storage place of filing cabinets. There were two washrooms.

At the rear part of the centre there were three interview rooms (approximately 100 square ft), one occupied by N5, the in-charge nurse specialist, and the other two rooms were each shared between two of the four nurses. Outside each room was a low of chairs. Patients waited for their appointments either watching educational videos or reading magazines, or sitting on the chairs lined up outside the interviewing rooms.

A major theme – busy centre with three sub-themes emerged from the field notes:

1. Vibrant activities

Apart from one of the five visits, which was an afternoon session set aside for routine nursing team meeting, vibrant activities were observed upon walking into the centre.

At the reception counter, the receptionist was busy with receiving patients as well as phone calls. She also called patients to remind their appointments. In one side of the living room, on three visits, there was a nurse giving a health talk to four to eight people, including patients, relatives. Observers (health professionals who undertook the professional diploma or master programme on diabetes care) were in the audience. The nurse used a microphone to deliver the talk. Apart from the noise arising from the health talk, the public address system frequently called on staff members to pick up their call from their desk. One the other side of the living room, three to four patients reclined on the sofa watching educational videos or talking to others. Some patients sitting in the queuing chairs outside the interview rooms propped their heads in the room from time to time to check whether it was their turn. Nurses were talking to patients in their respective rooms.

Some staff, including nurses, the workman and the receptionist went in and out of the room to obtain documents, laboratory specimen and equipments. One or two nurses dashing in and out of the centre with a bunch of files in their arms to go up or return from ward visits. This finding is supported by the nurse-patient interaction data that many noises were recorded in the audiotapes.

2. Frequent Interruptions during interviews

There were many interruptions while this writer interviewed the nurse. Although a quiet interview room was purposefully selected, staff came in to obtain documents or equipments. Patients walked in to ask questions or propped their heads in to check whether it was their turn. While the nurse being interviewed asked the operator to withhold all incoming calls directed to her, on one occasion there was an urgent call and on the other the operator had gone off duty because it was almost 6 pm. Constantly, the public address system called on other staff members to receive calls, one average there were five such public address calls each hour. This finding is supported by the nurse-patient interaction data that many interruptions such as telephone conversation, public announcements were recorded in the audiotapes.

As described above, although patients were seen by their named nurses in an interview room, due to the frequent intruding of staff members or other patients, there was no guarantee of privacy. Apart from the nurse in-charge who had a room, the other four nurses shared two rooms. The room used by the nurse-charge also stored a computer terminal whereby staff come in frequently to check patients' laboratory results. Patients or staff could overhear the conversation of the other nurse-patient dyad. This condition, however, has been very common in hospitals and clinics in HK, where space is precious and patient load is heavy.

3. Time pressure

During four visits that took place in the afternoon, this writer found that nurses were constantly working overtime due to the unfinished patient interviews or documentation. On one visit, this writer witnessed a scheduled nursing team meeting was delayed because two nurses were still detained by documentation and ward visit. On another visit, this writer arrived the centre during lunch break, it was found that the five nurses were sitting in the kitchen with their lunch boxes and conducting a team meeting on infectious control. In one visit, the receptionist received a call and told one of the nurses that instead of two patients in wards waiting for the visit there were two extra due for discharge. The nurse asked the receptionist to phone the wards to gather patients in one place to save her time from running between wards. After the nurse left for the ward, a couple came in the centre at 4:30pm and asked for a walk-in appointment with the nurse. The receptionist phoned the nurse in the ward, who assessed the patient on the phone for ten minutes. The nurse asked the receptionist to make an appointment for the patient on the following day.

While it was nurses who selected the appointment for data collection, this writer waited between 15 to 45 minutes because nurses were engaged by patients in the centre or in wards. During the nurse interviews, there were interruptions as described in the above, this writer felt that she impinged on nurse's time. This writer wanted to finish the interview quickly so that the nurse could move on to the next patient. These perceptions arising from a sense of time pressure might exist among nurses and their patients in the diabetes education encounters. This might in part explain why patients asked fewer questions. This writer felt grateful to the nurses who squeezed their time for the nurse interview. Patients might also have this feeling too when they found nurses spent time with them while working overtime. This might in part explain why patients gave high rating to the C-HCCQ. The perceptions of time pressure during education encounters are supported by the nurse and patient interviews. The theme of time pressure consistently emerged from these two data sets. The nurse-patient interaction data set also support this theme. Patients' appreciation with nurses spending time with them although nurses were overwhelmed by work was also supported in the patient interview data set.

Appendix 13

A summary of the findings that this study adds to the literature

What is already known	**What this study adds**
The extent to which self-empowerment as a health education model has taken root in HK has never been investigated.	The nurses hold dualistic ideology to diabetes education, but in practice the preventive model takes precedence.
Doctors' and patients' communication style in diabetes consultations is task-focused.	The communication style of the nurses and patients in diabetes education encounters is task-focused.
Nurses' communication style is controlling and dominating.	The communication style of the nurses is controlling and dominating. This is in part influenced by Chinese culture and nursing socialization in the acute-care culture.
A serious under-report of the influence of the Chinese cultural characteristics on the education process.	The patients give frequent and short agreements. This behaviour is influenced by the Chinese cultural practice of showing respect to authority in communication. The nurses play an over-protective parental role, which is in part influenced by the Chinese cultural norms of 'those who heal have a parent's heart'.
Telephone contact with nurses is a means of ensuring patients' access to healthcare.	The education process is often interrupted by telephone calls. Although the patients appreciate the ease of direct access to nurses through telephone, they also find the interruptions impact on quality time with nurses.
The RIAS is a valid and reliable tool for analysing communication behaviour in medical consultations.	Some RIAS codes may cause misinterpretation of the nature of the skills employed in education encounters.
No analytical scheme for education-specific encounters has been developed	The ESAS that is developed for use in this study is an education-specific analytical scheme. The ESAS is qualitative in nature that allows the usage patterns of education strategies to emerge, and from which the theoretical model adopted can be discerned.
Nurses use a preventive model to health/patient education.	The pattern of education strategies indicates that the nurses subscribe to the preventive model of diabetes education.

The education process for diabetes self-management has been described as a 'black box'.	This study shows a three-phase structure of the education process. It revolves around two overarching themes of "control" and "concern". The nurses work on the glycaemic control of the patients by controlling the education process and showing them concern, whereas the patients submit to the control of the nurses but expect them to display genuine concern.
	The education encounters start with a brief introductory phase, in which there is limited orientation to the nature of encounters
The literature suggests nursing process and health promotion as pertaining to incongruent paradigms.	The working phase shows an assessment-led pattern. The nurses mainly employ nurse-centred assessment strategies and factual knowledge oriented strategies. The nurses play the role of detective and BG monitor.
Nurses select most commonly physical topics for discussion	The nurses start the conversations with BG control and give the reason that this is a topic most patients could relate, thus serves as a warm-up topic. The nurses believe that Chinese patients are reluctant to discuss psychosocial issues without first forming a relationship. The patients also express face-saving as being a concern.
Nurses and patients block each other in communication.	Although the nurses and patients block each other, the nurses always regain the control. The patients block nurses by telling a story to contextualise the topic they raise to block nurses'.
	In the closing phase, the nurses employ the strategy of 'Negotiating sustainable behaviour' to offer the patients choices in selecting next education appointments. The patients perceive the nurses to be understanding and relieving the burden of attending the education programme by offering the choice.
	There is inadequate consolidation of learning in the closing phase of the case-closed visits.
	The patients perceive the education process as a 'treatment' or 'medical care', and as a treatment there should be no choice as to whether to engage in it or not, or as to whether to submit to the nurses' controlling behaviour. These perceptions are influenced by the acute-care culture of the healthcare setting and Chinese culture.

	The patients appreciate the behaviour of the nurses in the education process and perceive the nurses to be demonstrating genuine concern. The patients perceive following the prescribed behaviour to be paying respect to the nurses in return for their genuine concern. These perceptions are influenced by Chinese culture and the nurses' ability in demonstrating their caring attitude.
A good relationship forms the basis of a satisfactory encounter.	A positive nurse-patient relationship influences the patients' intention to follow the nurses' prescribed behaviour.
Chinese patients' perceptions of autonomy supportiveness has received limited research attention	The patients have low expectation for the control over the education process, perceiving it as a part of treatment. The patients submit to the control of the nurses but expect them to display genuine concern. These expectations are in part influenced by the acute-care culture and Chinese culture
Culturally sensitive nursing practice can avoid conflict and cultural clash	Culturally appropriate communication behaviour is essential for relationship building with Chinese patients.
Patient perspective on the link between the outcomes achieved and the education process has been rarely investigated.	The perceptions of the patients show a complex interplay of their internal and external environment in bringing about glycaemic control. Diabetes knowledge is only a part of the internal environment. Self-management is only one component of the patients' total life context.
	The patients' perceptions show diabetes-specific psychosocial self-efficacy and self-regulatory skills to be essential abilities, in addition to knowledge, for self-management. The patients perceive developing these abilities as their responsibility after nurses' knowledge in-put, which shows the Chinese cultural practice of self-sufficiency.
Chinese patients' perceptions of equal partnership have never been explored.	Many of the patients do not accept the terminology of equal partnership, which is influenced by Chinese culture, but welcome the two major conceptual elements of mutual respect and two-way communication in discussing self-management issues.

Chinese nurses' perceptions of equal partnership have never been explored.	The nurses' perceptions of equal partnership show ambivalence. The nurses perceive a strong accountability for the self-management and wellbeing of their patients.
Difficulties in making a paradigm shift to empowerment have been suggested.	This study shows that the difficulties are interwoven, and thus actions should be undertaken on a number of fronts to reap synergetic benefits. The nurses are constrained by their internal and external environment, and thus are bound to the preventive model of diabetes education. The internal environment includes their ideology of diabetes education, their strong sense of accountability for the self-management and wellbeing of their patients, their values of being a caring parent and their inadequate mastery of the empowering process. The external environment includes the acute-care culture of the healthcare system, Chinese culture, nursing socialisation, the heavy patient load and patient profiles.
Critics have commented on atheoretical nature of the published studies.	The theoretical framework that is developed in this study is competent in guiding the investigation of nurse-patient interaction of the education process for diabetes self-management.

References

Adolfsson, E.T., Smide, B., Gregeby, E., Fernstrom, L., Wikblad, K. (2004) Implementing Empowerment Group Education in Diabetes, *Patient Education and Counselling,* 53 pp 319-324.

Albano, M.G., Jacquemet, S., Assal, J.P. (1998) Patient Education and Diabetes Research: A failure! Going beyond the empirical approaches, *Acta Diabetology,* 35 pp 207-214.

American Association of Diabetes Educators (2003) *Member Resource Guide 2003. Position Statement: Diabetes education and public health,* Chicago, AADE, pp 64-66.

Aminoff, U.B., Kjellgren, K.I. (2001) The Nurse – A resource in hypertension care, *Journal of Advanced Nursing* 35, (4) pp 582-589.

Ammenwerth, E., Iller, C., Mansmann, U. (2003) Can Evaluation Studies Benefit from Triangulation? A Case Study, *International Journal of Medical Informatics,* 70 pp 237-248.

Anderson, J.M., Wiggins,S., Rajwani, R., Holbrook, A., Blue, C. (1995) Living with a Chronic Illness: Chinese-Canadian and Euro-Canadian women with diabetes - Exploring factors that influence management, *Social Science Medicine,* 14 (2) pp 181-195.

Anderson, L.A., Sharpe, P.A. (1991) Improving Patient and Provider Communication: A synthesis and review of communication interventions, *Patient Education and Counselling,* 17 pp 99-134.

Anderson, R., Carlson, A., Cradock, S., Funnell, M., Saleh-Statin, N., Skinner, T.C. (2000) Facilitating Self-Care Through Empowerment, in Frank, J., Snoek, T., Chas, Skinner., Eds (2000) *Psychology in diabetes care,* New York, John Wiley and Sons, pp 69-98.

Anderson, R.M., Funnell, M.M. (2000) Compliance and Adherence are Dysfunction Concepts in Diabetes Care, *Diabetes Educator,* 26 (4) pp 597-604.

Anderson, R.M., Funnell, M.M. (1999) Theory is the Cart, Vision is the Horse: Reflections on reseach in diabetes patient education, *Diabetes Educator,* 26 (5) pp S43-S51.

Anderson, R., Funnell, M. (2005a) *The Art of Empowerment: Stories and strategies for diabetes educators* (2nd Edition), Alexandria: American Diabetes Association.

Anderson, R.M., Funnell M.M. (2005b) Patient Empowerment: Reflections on the challenge of fostering the adoption of a new paradigm. *Patient Education and Counselling,* 57 (2) pp 153-157.

Arnold, M.S., Bulter, P.M., Anderson, R.M., Funnell, M.M., Festes, C. (1995) Guidelines for Facilitating a Patient Empowerment Program, *Diabetes Educator,* 21 (4) pp 308-312.

Arthur, D., Chan, H.K., Fung, W.Y., Wong, K.Y., Yeung, K.W. (1999) Therapeutic Communication Strategies Used by Hong Kong Mental Health Nurses with their Chinese Clients, *Journal of Psychiatric and Mental Health Nursing,* 6 pp 29-36.

Ashton, J. (1990) The Health of Towns and Cities, *Health Visitor,* 63 (12) pp 413-415.

Baggens, C. (2001) What They Talk about: Conversation between child health centre nurses and parents, *Journal of Advanced Nursing,* 36 (5) pp 659-667.

Bandura, A. (1997) The Science of Health Promotion, *American Journal of health Promotion,* 12 (1) pp 8-10.

Barr, V.J., Robinson, S., Marin-Link, B., Underhill, L. Dotts, A., Ravensdale, D., Salivaras, S. (2003) The Expanded Chronic Care Model: An integration of concepts and strategies from population health promotion and the chronic care model, *Hospital Quarterly*, 7(1) pp 73-82.

Bartz, R. (1999) Beyond the Biopsychosocial Model: New approaches to doctor-patient interactions, *Journal of Family Practice,* 48 (8) pp 601-607.

Basa, R.P., McLeod, B. (1995) Evaluation of a Diabetes Specially Centre: Structure, process and outcome, *Patient Education and Counselling,* 25 pp 23-29.

Begley, C. (1996) Triangulation of Communication Skills in Qualitative Research Instruments, *Journal of Advanced Nursing,* 24 (4) pp 688-693.

Benner, P., Wrubel, J. (1989) *The Primacy of Caring: Stress and coping in health and illness,* New York, Addison-Wesley Publishing Company.

Benson, A., Latter, S. (1998) Implementing Health Promoting Nursing: The integration of interpersonal skills and health promotion, *Journal of Advanced Nursing,* 27 (1) pp 100-107.

Bhaskar, R. (1978) *A Realist Theory of Science,* Sussex, The Harvester Press.

Blaikie, N. (1993) *Approaches to Social Enquiry,* Oxford, Polity Press.

Bodenheimer, T., Lorig, K., Holman, H., Grumbach, K. (2002) Patient Self-management of Chronic Disease in Primary Care. *Journal of American Medical Association*, 288 (19) pp 2469-2475.

Bond, M.H. (1996) Chinese Values, in Bond, M.H., Ed (1996) *The handbook of Chinese pychology,* Hong Kong, Oxford University Press, pp 213-299.

Bowman, B.A. Gregg, E.W., Williams, D.E. Engelgau, M.M. Jr, L.J. (2003) Translating the Science of Primary, Secondary, and Teritaty Prevention to Inform the Public Health Response to Diabetes, *Journal of Public Health Management Practice,* November (Suppl) pp S8-S14.

Brown, S.A. (1988) Effects of Educational Interventions in Diabetes Care: A meta-analysis of findings, *Nursing Research,* 37 (4) pp 223-229.

Brown, S.A. (1990) Studies of Educational Interventions and Outcomes in Diabetes Adults: A meta-analysis Revised, *Patient Education and Counselling,* 16 pp 189-215.

Brown, S.A. (1992) Meta-Analysis of Diabetes Patient Education Research: Variations in intervention effects across studies, *Research in Nursing and Health,* 15 pp 409-419.

Brown S.A.(1999) Interventions to Promote Diabetes Self-management: State of the science, *Diabetes Care,* 25 (6 Suppl) pp 52-88.

Brown, S.A., Garcia, A.A., Winchell, M. (2002) Reaching Underservered Populations and Cultural Competence in Diabetes Education, *Current Diabetes Reports,* 2 (2) pp 166-176.

Cantrell, J. (1998) District Nurses' Perceptions of Health Education, *Journal of Clinical Nursing,* 7 (1) pp 89-96.

Caraher, M. (1994) Nursing and Health Promotion Practice: The creation of victims winners in a political context, *Journal of Advanced Nursing,* 20 pp 465-468.

Caraher, M. (1998) Patient Education and Health Promotion: Clinical health promotion – the conceptual link, *Patient Education and Counselling,* 33 pp 49-58.

Caris-Verhallen, W.M.C.M., Kerkstra, A., Bensing, J.M. (1997) The Role of Communication in Nursing Care for Elderly People: A review of the literature, *Journal of Advanced Nursing,* 25 (5) pp 915-933.

Carr, E.C.F., Worth, A. (2001) The Use of the Telephone Interview for Research, *NT Research,* 6 (1) pp 511-524.

Cegala, D.J. (2003) Patient Communication Skills Training: A review with implications for cancer patients, *Patient Education and Counselling,* 50 pp 91-94.

Cegala, D.J., Broz, S.L. (2002) Physician Communication Skills Training: A review of theoretical backgrounds, objectives and skills, *Medical Education,* 36 pp 1004-1016.

Chan, F.Y.S., Wong, G.K.C. (2000) Health Promotion in Hospitals: The attitudes or health care professionals, *Hong Kong Nursing Journal,* 36 (2) pp 7-15.

Chan, J.C.N. (2000) Diabetes in Hong Kong – Where do we go from here. Abstracts of the *2nd Hong Kong Diabetes and Cardiovascular Risk Factors – East Meets West Symposium*, 30 Sep – 1 Oct 2000, pp 28.

Chan, J.C.N., Cockram, C.S. (1997) Diabetes in the Chinese Population and its Implications for Health Care, *Diabetes Care,* 20(11) pp 1785-1790.

Chan, J.C.N., Yeung, V.T.F., Chow, C.C., Ko, G.T.C., Cockram, C.S. (1998) *A Manual for Management of Diabetes Mellitus: A Hong Kong Chinese perspective,* Hong Kong, Chinese University Press.

Chan, S.W.C. (2002) Factors Influencing Nursing Leadership Effectiveness in Hong Kong, *Journal of Advanced Nursing,* 38 (6) pp 615-623.

Chan, S.W.C., Cheng, B.S. (1999) Political Participation in Hong Kong: A study, *Journal of Nursing Management,* 7 (3) pp 167-175.

Chau, Y.S., Shiu, A.T.Y., Ma, S.F., Au T.Y. (2005) A Nurse-led Walking Exercise Programme for Hong Kong Chinese Diabetic Patients: Implications for facilitating self-efficacy beliefs, *Journal of Clinical Nursing,* 14, pp 1257-1259.

Chen, Y.C. (2001) Chinese Values, Health and Nursing, *Journal of Advanced Nursing,* 36 (2) pp 270-273.

Cheng, B.K. (1997) Cultural Clash between Providers of Majority Culture and Patients of Chinese Culture, *Journal of Long-Term Home Health Care,* 16 (2) pp 39-43.

Chin, J. J. (2002) Doctor-patient Relationship: From medical paternalism to enhanced autonomy, *Singapore Medical Journal*, 43 (3) pp 152-155.

Cody, W. K. (2003) Paternalism in Nursing and Healthcare: Central issues and their relation to theory, *Nursing Science Quarterly*, 16 (4) pp 288-296.

Colquhoun, D. (1992) Dominant Disorders [Models] in Health Education, in Deakin University, (1992) *Health education: Politics and practice*, Geelong, Deakin University, pp 3-25.

Connelly, J. (2001) Critical Realism and Health Promotion: Effective practice needs an effective theory, Editorial, *Health Education Research,* 16 (2) pp 115-120.

Cooper, H.C., Booth, K., Gill G. (2003a) Patients' Perspectives on Diabetes Health Care Education, *Health Education Research,* 18 (2) pp 191-206.

Cooper, H., Booth, K., Gill, G.. (2003b) Using Combined Research Methods for Exploring Diabetes Patient Education, *Patient Education and Counselling,* 51 pp 45-52.

Corbin, J.M., Strauss, A. (1991) A Nursing Model for Chronic Illness Management Based upon the Trajectory framework, *Scholarly Inquiry for Nursing Practice: An International Journal,* 5 (3) pp 155-174.

Cottrell, R.R., Girvan, J.T., McKenzie, J.F. (2002) *Principles and Foundations of Health Promotion and Education,* 2nd Edition, London, Pearson Education.

Coulter, A. (1999) Paternalism or Partnership: Patients have grown up and there's no going back, *British Medical Journal*, 319 (7212) pp 719-720.

Crabtree, B.F., Miller, W.L. (1999) Using Codes and Code Manuals: A template organizing style of interpretation, in Crabtree, B.F., Miller, W.L., Eds (1999) *Doing qualitative research,* 2nd Edition, Thousand Oaks, Sage, pp 163-177.

Cramer, J.A. (2004) A Systematic Review of Adherence with Medications for Diabetes, *Diabetes Care,* 27 (5) pp 1218-1224.

Cribb, A., Dines, A. (1993) What is Health Promotion? In Dines, A., Cribb, A., Eds (1993) *Health promotion: concepts and practice,* Oxford, Blackwell Scientific, pp 20-33.

Curtin, R.B., Mapes, D., Schatell, D., Burrows-Hudson, S. (2005) Self-management in Patients with End Stage Renal Disease: Exploring domains and dimensions. *Nephrology Nursing Journal, 32* (4), 389-395.

Day, J.L., Coles, C., Walford, S. (2003) Self-management in Diabetes: Training implications for professional carers, *Clinical Medicine,* 3 (4) pp 338-341.

Denzin, N.K. (1994) The Art and Politics of Interpretation. In Denzin, N.K., Lincoln, Y.S., Eds (1994) *Handbook of qualitative research,* London, Sage, pp 500-515-208.

Denzin, N.K., Lincoln, Y.S. (1994) Part 111: Strategies of inquiry. In Denzin, N.K., Lincoln, Y.S., Eds (1994) *Handbook of qualitative research,* London, Sage, pp 199-208.

Department of Health, HK. (2005) *Annual Reports.* Hong Kong: Hong Kong Government Printer.

Dines, A. (1994) What Changes in Health Behaviour Might Nurses Logically Expect from Their Health Education Work? *Journal of Advanced Nursing,* 20 pp 219-226.

Doherty, Y., Hall, D., James, P.T., Roberts, S.H., Simpson, J. (2000) Change Counselling in Diabetes: The development of a training programme for the diabetes team, *Patient Education and*

Counselling, 40 pp 263-278.

Donmoyer, R. (2000) Generalizability and the Single-case Study, in Gomm, R., Hammersley, M., Foster, P., Eds (2000) *Case study method,* London, Sage, pp 45-68.

Easton, K.L., McComish, J.F., Greenberg, R. (2000) Avoiding Common Pitfalls in Qualitative Data Collection and Transcription, *Qualitative Health Research,* 10 (5) pp 703-707.

Eisenhardt, K.M. (1995) Building Theories From Case Study Research, in Huber, G..P., Van der Ven, A.H., Eds (1995) *Longitudinal field research methods: Studying processes of organisational change,* California, Sage Publications, pp 65-90.

Elasy, T.A., Ellis, S.E., Brown, A., Pichert, J.W. (2001) A Taxonomy for Diabetes Education Interventions, *Patient Education and Counselling,* 43 pp 121-127.

Ellis, S.E., Speroff, T., Dittus, R.S., Brown, A., Pichert, J.W., Elasy, T.A. (2004) Diabetes Patient Education: A meta-analysis and meta-regression, *Patient Education and Counselling,* 52 pp 97-105.

Ellis-Stoll, C.C., Popkess-Vawter, S. (1998) A Concept Analysis on the Process of Empowerment, *Advanced Nursing Science,* 21 (2) pp 62-68.

Ewles, L., Simnett, I. (2002) *Promoting Health: A practical guide,* 5th Edition, London, Bailiere Tindall.

Fain, J.A., Nettles, A., Funnell M.M., Charron, D. (1999) Diabetes Patient Education Research: An integrative literature review, *Diabetes Educator,* 25 (6 Suppl) pp 7-15.

Fairclough, J. (2005) Ethical Debates within Counselling Psychology: Recent debates in the literature. *Counselling Psychology,* 20 (2) pp 24-32.

Fan, R., Li, B. (2004) Truth Telling in Medicine: The confucian view, *Journal of Medicine and Philosophy,* 29 (2) pp 179-193.

Fawcett, J. (1995) *Analysis and Evaluation of Theories of Nursing.* Philadelphia, FA Davis.

Feste, C. (1992) A Practical Look at Patient Empowerment, *Diabetes Care,* 15 (7) pp 922-925.

Fisher, E.B., Brownson, C.A., O'Toole, M.L., Shetty, G., Anwuri, V.V., Glasgow, R.E. (2005) Ecological Approaches to Self-management: the case of diabetes. *American Journal of Public Health,* 95 (9), 1523-1535.

Fosbinder, D. (1994) Patient Perceptions of Nursing Care: An emerging theory of interpersonal competence, *Journal of Advanced Nursing,* 20 pp 1085-1093.

Fox, J. (2005) The Role of the Expert Patient in the Management of Chronic Illness, *British Journal of Nursing,* 14 (1) pp 25-28.

Freeman, J., Loewe, R. (2000) Barriers to Communication about Diabetes Mellitus: Patients' and physicians' different views of disease, *Journal of Family Practice,* 49 (6), 507-512.

Freire, P. (1983) *Education for Critical Consciousness,* New York, Continuum Press.

French, J., Adams, L. (1986) From Analysis to Synthesis: Theories of health education, *Health Education Journal,* 45 (2) pp 71-74.

Fulton, Y. (1997) Nurses' View on Empowerment: Critical social theory perspective, *Journal of Advanced Nursing,* 26 (3) pp 529-536.

Funnell, M.M., Anderson, R.M. (2003) Changing Office Practice and Health Care Systems to Facilitate Diabetes Self-Management, *Current Diabetes Report,* 3 (2) pp 127-133.

Funnell, M.M., Anderson, R.M. (2004) Empowerment and Self-Management of Diabetes, *Clinical Diabetes,* 22 (3) pp 123-127.

Gabrenya, W.K.Jr., Hwang, K.K. (1996) Chinese Social Interaction: Harmony and hierarchy on the good Earth, in Bond, M.H., Ed (1996) *Handbook of Chinese psychology,* Hong Kong, Oxford University Press, pp 309-321.

Gage, H., Hampson, S., Skinner, T.C., Hart, J., Storey, L., Foxcroft, D., Kimber, A., Cradock, M.E. (2004) Educational and Psychosocial Programs for Adolescents with Diabetes: Approaches, outcomes and cost-effectiveness, *Patient Education and Counselling,* 53 pp 333-346.

Gagnayre, R., Traynard, P.Y., d'Ivernois, J.F., Slama, G. (2000) An Analysis of the Teaching Techniques Used in Diabetic Specialist Consultations, *Patient Education and Counselling,* 39 pp 163-167.

Gao, G., Ting-Toomey, S., Gudykunst, W.B. (1996) Chinese Communication Processes, in Bond, M.H., Ed (1996) *Handbook of Chinese psychology,* Hong Kong, Oxford University Press, pp 280-293.

Garbett, R., McCormack, B. (2001) The Experience of Practice Development: An exploratory telephone interview study, *Journal of Clinical Nursing,* 10 (1) pp 4-102.

Gibson, C.H. (1991) A Concept Analysis of Empowerment, *Journal of Advanced Nursing,* 16 pp 354-361.

Glaser, B.G., Strauss, A.L. (1967) *The Discovery of Grounded Theory: Strategies for qualitative research,* Hawthorne, Aldine.

Glasgow, R.E. (1999) Outcomes of and For Diabetes Education Research, *Diabetes Educator,* 25 (6 Suppl) pp 74-88.

Glasgow, R.E., Osteen, V.L. (1992) Evaluating Diabetes Education: Are we measuring the most important outcomes? *Diabetes Care,* 15 (10) pp 1441-1432.

Gomm, R., Hammersley, M., Foster, P. (2000) Case Study and Generalization, in Gomm, R., Hammersley, M., Foster, P., Eds (2000) *Case study method,* London, Sage, pp 98-116.

Gott, M., O'Brien, B. (1990) *The Role of the Nurse in Health Promotion: Policies, perspectives and practice,* Department of Health and Social Welfare, Milton Keynes, Open University.

Grace, V.M. (1991) The Marketing of Empowerment and the Construction of the Health Consumer: A critique of health promotion, *International Journal of Health Services,* 21 (2) pp 329-343.

Greenfield, S., Kaplan, S.H., Ware, Jr., J.E., Yano, E.M., Frank, H.J.L. (1988) Patients' Participation in Medical Care: Effects on blood sugar control and quality of life in diabetes, *Journal of General Internal Medicine,* 3 pp 448-457.

Guba, E.G., Lincoln, Y.S. (1994) Completing Paradigms in Qualitative Research, in Denzin, N.K., Lincoln, Y.S., Eds (1994) *Handbook of qualitative research,* London, Sage, pp 105-117.

Hagerty, B.M., Patusky, K.L. (2003) Reconceptualizing the Nurse-Patient Relationship, *Journal of Nursing Scholarship, 35* (2) pp 145-150.

Hammersley, M., Gomm, R., Foster, P. (2000) Case Study and Theory, in Gomm, R., Hammersley, M., Foster, P., Eds (2000) *Case study method,* London, Sage, pp 234-258.

Hampson, S.E., Mckay, H.G., Glasgow, R.E. (1996) Patient-Physician Interactions in Diabetes Management: Consistencies and variation in the structure and content of two consultations, *Patient Education and Counselling,* 29 pp 49-58.

Harachi, T.W., Abbott, R.D., Catalano, R.F., Haggerty, K.P., Fleming C.B. (1999) Opening the Black Box: Using process evaluation measures to assess implementation and theory building, *American Journal of Community Psychology,* 27 (5) pp 711-731.

Harrington, J., Noble, L.M., Newman, S. P. (2004) Improving Patients' Communication with Doctors: A systematic review of intervention studies, *Patient Education and Counselling,* 52 pp 7-16.

Harvard Report (1999) *Improving Hong Kong's Health Care System: Why and for whom? Executive summary,* Hong Kong, Hong Kong Government Printer.

Hawks, J.H., Hromek, C. (1992) Nursing Practice: Empowerment strategies, *Nursing Outlook,* 40 (5) pp 231-234.

Heisler, M., Bouknight, R., Hayward, R.A., Smith, D.M., Kerr, E.A. (2002) The Relative Importance of Physician Communication, Participatory Decision Making, and Patient Understanding in Diabetes Self-Management, *Journal of General Internal Medicine,* 17 (4) pp 243-252.

Heller, S. (2002) Editorial: Mistaken priorities in diabetes research, *Diabetic Medicine,* 19 pp 263-264.

Hewitt-Taylor, J. (2004) Challenging the Balance of Power: Patient empowerment, *Nursing Standard, 18* (22) pp 33-37.

Holman, H., Lorig, K. (2004) Patient Self-management: A key to effectiveness and efficiency in care of chronic disease, *Public Health Reports,* 119 (3) pp 239-243.

Holmstrom, I., Larsson, J., Lindberg, E., Rosenqvist, U. (2004) Improving the Diabetes-Patient Encounter by Reflective Tutoring for Staff, *Patient Education and Counselling,* 53 pp 325-332.

Hulsman, R.L., Ros, W.J.G, Winnubst, J.A.M., Bensing, J.M. (1999) Teaching Clinically Experienced Physicians Communication Skills. A Review of Evaluation Studies, *Medical Education,* 33 pp 655-668.

Humphry, J., Jameson, L.M., Beckham, S. (1997) Overcoming Social and Cultural Barriers to Care for Patients with Diabetes, *Western Journal of Medicine,* 167 pp 138-144.

Hyndman B. (1998) *Health Promotion in Action: A review of the effectiveness of health promotion strategies.* Evaluation in health promotion series: HP-10-0408. Toronto, Centre for Health Promotion/ParticipACTION.

International Council of Nurses (2000) *ICN on mobilizing nurses for health promotion.* [Online] 13 Nov 2004, http://www.icn.ch/matters_healthpromo_print.htm.

Israel, B.A., Checkoway, B., Schulz, A., Zimmeraman, M. (1994) Health Education and Community Empowerment: Conceptualizing and measuring perceptions of individual, organisational, and community control, *Health Education Quarterly,* 21 (2) pp 149-170.

Israel, B., Cummings, K., Dignan, M., Henncy, C., Perales, D., Simons-Morton, B., Zimmerman, M. (1995) Evaluation of Health Education Programs: Current assessment and future directions, *Health Education Quarterly,* 22 (3) pp 364-389.

Jack, L. (2003) Diabetes Self-management Education Research: an international review of intervention methods, theories, community partnerships and outcomes, *Disease Management and Health Outcomes,* 11(7) pp 415-428.

Janus, E.D., Postiglione, A., Singh, R.B., Lewis, B (1996) The Modernization of Asia: Implications for coronary heart disease, *Cardiovascular News,* 94 (11) pp 2671-2673.

Jarrett, N., Payne, S. (1995) A Selective Review of the Literature on Nurse-Patient Communication: Has the patient's contribution been neglected?, *Journal of Advanced Nursing,* 22 (1) pp 72-78.

Jones, J. (2000a) What is Health? in Katz, J., Peberdy, A., Douglas, J., Eds (2000) *Promoting health: knowledge and practice,* 2nd Edition, Oxford, The Open University, pp 18-36.

Jones, J. (2000b) Behavioural and Environmental Influences on Health, in Katz, J., Peberdy, A., Douglas, J., Eds (2000) *Promoting health: Knowledge and practice,* 2nd Edition, Oxford, The Open University, pp 37-57.

Jones, J., Douglas, J. (2000) The Rise of Health Promotion, in Katz, J., Peberdy, A., Douglas, J., Eds (2000) *Promoting health: Knowledge and practice,* 2nd Edition, Oxford, The Open University, pp 57-79.

Jones, L., Naidoo, J. (2000) Theories and Models in Health Promotion, in Katz, J., Peberdy, A., Douglas, J., Eds (2000) *Promoting health: Knowledge and practice,* 2nd Edition, Oxford, The Open University, pp 80-94.

Kaplan, S.H., Greenfield, S., Ware, J.E. (1989) Assessing the Effects of Physician-patient Interactions on the Outcomes of Chronic Disease, *Medical Care,* 27 (3) pp S110-S127.

Katz, J., Peberdy, A., Douglas, J. Eds (2000) *Promoting Health: Knowledge and practice,* 2nd Edition, Oxford, The Open University.

Kazi, M.A.F. (2003) *Realist Evaluation in Practice: Health and social work,* Thousand Oaks, Sage.

Kelly, M.P. (1992) Health Promotion in Primary Care: Taking account of the patient's point of view, *Journal of Advanced Nursing,* 17 pp 1291-1296.

Kendall, S. (1993) Do Health Visitors Promote Client Participation? An Analysis of the Health

Visitor-client Interaction, *Journal of Clinical Nursing,* 2 pp 103-109.

Kendall, S. (1998) Introduction, in Kendall, S., Ed (1998) *Health and Empowerment: Research and practice,* London, Arnold, pp. 1-7.

Kettunen, T., Poskiparta, M., Liimatainen, L. (2000) Communicator Styles of Hospital Patients During Nurse-Patient Counselling, *Patient Education and Counselling,* 41 pp 161-180.

Kettunen, T., Poskiparta, M., Liimatainen, L. (2001) Empowering Counselling – Nurse-Patient Encounter in a Hospital, *Health Education Research,* 16 (2) pp 227-238.

Kettunen, T., Poskiparta, M., Gerlander, M. (2002) Nurse-patient Power Relationship: Preliminary evidence of patients' power messages, *Patient Education and Counselling,* 47 pp 101-113.

Kickbusch, I. (2003) The Contribution of the World Health Organisation to a New Public Health and Health Promotion, *American Journal of Public Health,* 93 (3) pp 383-388.

Kilian, R., Lindenbach, I., Lobig, U., Uhle, M., Petscheleit, A., Angermeyer, M.C. (2003) Indicators of Empowerment and Disempowerment in the Subjective Evaluation of the Psychiatric Treatment Process by Persons with Severe and Persistent Mental Illness: A qualitative and quantitative analysis, *Social Science and Medicine,* 57 pp 1127-1142.

King, E.B., Schlundt, D.G., Pichert, J.W., Kinxer, C.K., Backer, B.A. (2002) Improving the Skills of Health Professionals in Engaging Patients in Diabetes-related Problem Solving, *Jounral of Continuing Education in the Health Professionals* 22 pp 94-102.

Kinmonth, A.L., Spiegal, N., Woodcock, A. (1996) Developing a TrainingProgramme in Patient-centred Consultation for Evaluation in a Randomised Controlled Trial; Diabetes Care from Diagnosis in British Primary Care, *Patient Education and Counselling,* 29 pp 75-86.

Kinmonth, A.L., Woodcock, A., Griffin, S., Spiegal, N., Campbell, M.J. (1998) Randomised Controlled Trial of Patient Centred Care of Diabetes in General Practice: Impact on current wellbeing and future disease risk, *British Medical Journal,* 317 (7167) pp 1202-1208.

Koch, T. (1994) Establishing Rigour in Qualitative Research: The decision trail, *Journal of Advanced Nursing,* 19 pp 976-986.

Koch, T., Jenkin, P., Kralik, D. (2004) Chronic Illness Self-management: Locating the self, *Journal of Advanced Nursing,* 48(5) pp 484-492.

Kok, G., Borne, B., Mullen, P. D. (1997) Effectiveness of Health Education and Health Promotion: Meta-analyses of effect studies and determinants of effectiveness, *Patient Education and Counselling,* 30 pp 19-27.

Koopman-van der Berg, D.J.E.M., van Der Bijl, J.J. (2001) The Use of Self-Efficacy Enhancing Methods in Diabetes Education in the Netherlands, *Scholary Inquiry for Nursing Practice,* 15 (3) pp 249-257.

Krischbaum, K., Aarestad, V., Buethe, M. (2003) Exploring the Connection Between Self-Efficacy and Effective Diabetes Self-Management, *Diabetes Educator,* 29 (4) pp 653-662.

Kristjanson, L., Chalmers, K. (1990) Nurse-Client Interactions in Community-Based Practice:

Creating common ground, *Public Health Nursing,* 7 (4) pp 215-223.

Kruijver, I.P.M., Kerkstra, A., Bensing, J.M., van de Wiel, H.B.M. (2000a) Nurse-Patient Communication in Cancer Care: A review of the literature, *Cancer Nursing,* 23 (1) pp 20-31.

Kruijver, I.P.M., Kerkstra, A., Francke, A.L., Bensing, J.M., van de Wiel, H.B.M. (2000b) Evaluation of Communication Training Programs in Nursing Care: A review of the literature, *Patient Education and Counselling,* 39 pp 129-145.

Kruijver, I.P.M., Kerkstra, A., Bensing, J.M., van de Wiel, H.B.M. (2001) Communication Skills of Nurses During Interactions with Simulated Cancer Patients, *Journal of Advanced Nursing,* 34 (6) pp 772-779.

Kuhn, T.S. (1996) *The Structure of Scientific Revolutions,* 3rd Edition, Chicago, University of Chicago Press.

Labonte, R. (1990) Empowerment: Notes on professional and community dimensions, *Canadian Review Social Policy,* 26 pp 1-12.

Lalonde, M. (1974) *A New Perspective on the Health of Canadians,* Ottawa, Government of Canada.

Lam, T.H., Liu, L.J., Janus, E.D., Lam, K.S., Hedley, A.J. (2000) Fibrinogen, Other Cardiovascular Risk Factors and Diabetes Mellitus in Hong Kong: A community with high prevalence of type 2 diabetes mellitus and impaired glucose tolerance, *Diabetic Medicine,* 17 (11) pp 798-806.

Langewitz, W., Nubling, M., Weber, H. (2003) A Theory-based Approach to Analyzing Conversation Sequences, *Epidemiologia e Psichiatria Sociale,* 12 (2) pp 103-108.

Langewitz, W., Wossmer, B., Iseli, J., Berger, W. (1997) Psychological and Metabolic Improvement After An Outpatient Teaching Program for Functional Intensified Insulin Therapy (FIT), *Diabetes Research and Clinical Practice,* 37 pp 157-164.

Lapadat, J.C., Lindsay, A.C. (1999) Transcription in Research and Practice: From standardization of technique to interpretive positionings, *Qualitative Inquiry,* 5 (1) pp 64-86.

Larme, A.C., Meyer, J.S., Pugh, J.A. (1998) Use of Qualitative Methods to Evaluate Diabetes Education Programmes, *Diabetes Educator,* 24 (4) pp 499-500.

Latter, S. (1998) Health Promotion in the Acute Setting: The case for empowering nurses, in Kendall, S., Ed (1998) *Health and empowerment: Research and practice,* London, Arnold, pp 11-37.

Lee, C.S.L., Shiu, A.T.Y. (2004) Perceived Health Care Climate, Diabetes Knowledge and Self-Care Practice of Hong Kong Chinese Elderly Patients: A pilot study, *Journal of Clinical Nursing,* 13 pp 534-535.

Legge, J. (1963) *The Yi Ching: Book of Change*, New York, Dover Publication.

Legge, J. (1971) *Confucius. Confucian Analects, the Great Learning,* the *Doctrine of the Mean,* New York, Dover Publications.

Leung G.M., Wong, I.O.L., Chan, W.S., Choi, S., Lo, S.V. (2005) The Ecology of Health Care in Hong Kong, *Social Science and Medicine, 61*, 577-590.

Li, J. (2003) The Core of Confucian Learning, *American Psychologist*, 58 pp 146-147.

Lieberson, S. (2000) Small N's and Big Conclusions: An examination of the reasoning in comparative studies based on a small number of cases, in Gomm, R., Hammersley, M., Foster, P., Eds (2000) *Case study method,* London, Sage, pp 208-222.

Lincoln, Y.S., Guba, E.G.. (2000) The Only Generalization is There is no generalization, in Gomm, R., Hammersley, M., Foster, P., Eds (2000) *Case study method,* London, Sage, pp 27-44.

Lindsey, E., Hartrick, G. (1996) Health-promoting Nursing Practice: The demise of the nursing process? *Journal of Advanced Nursing,* 23 (1) pp 106-112.

Linnan, L., Steckler, A. (2002) Process Evaluation for Public Health Interventions and Research, in Steckler, A., Linnan, L., Eds (2002) *Process evaluation for public health interventions and research,* San Francisco, Jossey-Bass, pp 1-23.

Long, T., Johnson, M. (2000) Rigor, Reliability and Validity in Qualitative Research, *Journal of Clinical Effectiveness in Nursing,* 4 pp 30-37.

Lorig, K. (2003) Self-management Education: More than a nice extra, *Medical Care,* 41 (6) pp 699-701.

Maben, J., Macleod, C.J. (1995) Health Promotion: A concept analysis, *Journal of Advanced Nursing,* 22 pp 1159-1165.

Macleod Clark, J. (1983) Nurse-patient Communication – An analysis of conversations from surgical wards, in Wilson-Barnett, J., Ed (1983) *Nursing research-ten studies in patient care,* Chichester, John Wiley, pp 25-56.

Macleod Clark, J. (1993) From Sick Nursing to Health Nursing: Evolution or revolution? in Wilson-Barnett, J., Macleod Clark, J., Eds (1993) *Research in health promotion and nursing,* London, Macmillan, pp 3-12.

Macleod Clark, J., Haverty, S., Kendall, S. (1990) Helping People to Stop Smoking: A study of the nurse's role, *Journal of Advanced Nursing,* 16 pp 357-363.

Macleod Clark, J., Maben, J. (1998) Health Promotion: Perceptions of project 2000 educated nurses, *Health Education Research,* 13 (2) pp 185-196.

Macleod Clark, J., Maben, J. (1999) Health Promotion in Primary Health Care Nursing: The development of quality indicators, *Health Education Journal,* 58 (2) pp 99-119.

MacDonald, G., Bunton, R. (2002) Health Promotion: Disciplinary developments. In Bunton, R., Macdonald, G., Eds (2002) *Health promotion. disciplines, diversity, and developments,* London, Routledge, pp 9-37.

Makoul, G., Arntson, P., Schofield, T. (1995) Health Promotion in Primary Care: Physician patient communication and decision making about prescription medications, *Social Science and Medicine,* 41 (9) pp 1241-1254.

Marks, R., Allegrante, J.P., Lorig, K. (2005a) A Review and Synthesis of Research Evidence for Self-efficacy-enhancing Interventions for Reducing Chronic Disability: Implications for health education practice (part I), *Health Promotion Practice,* 6 (1) pp 37-43.

Marks, R., Allegrante, J.P., Lorig, K. (2005b) A Review and Synthesis of Research Evidence for Self-efficacy-enhancing Interventions for Reducing Chronic Disability: Implications for health education practice (part II), *Health Promotion Practice,* 6 (2) pp 148-156.

McBride, A. (1994) Health Promotion in Hospitals: The attitudes, beliefs and practices of hospital nurses, *Journal of Advanced Nursing,* 20 pp 92-100.

McDonald, E. (1998) The Role of Project 2000 Educated Nurses in Health Promotion within the Hospital Setting, *Nurse Education Today,* 18 pp 213-220.

McEvoy, P., Richards, D. (2003) Critical Realism: A way forward for evaluation research in nursing? *Journal of Advanced Nursing,* 43 (4) pp 411-420.

McKenna, H. (1997) The Trouble with Terminology, in McKenna, H., Ed (1997) *Nursing theories and models,* London, Routledge, pp 1-23.

Mckeown, T. (1976) *The Role of Medicine – Dream, mirage ornNemesis?* London, Nuffield Provincial Hospitals Trust.

Mead, N., Bower, P. (2000) Measuring Patient-Centredness: A comparison of three observation-based instruments, *Patient Education and Counselling,* 39 pp 71-80.

Meetoo, D., Temple, B. (2003) Issues in Multi-Method Research: Constructing self-care, *International Journal of Qualitative Methods,* 2 (3) [Online] 20 June 2004, http://www.ualberta.ca/~ijqm/backissues/2_3final/pdf/meetootemple.pdf

Merriam, S.B. (1998) *Qualitative Research and Case Study Applications in Education: Revised and expanded from case study research education,* San Francisco, Jossey-Bass.

Miles, M., Huberman, A. (1994) *Qualitative Data Analysis,* London, Sage.

Miller, W.L., Crabtree, B.F. (1999) Clinical Research: A multimethod typology and qualitative roadmap, in Crabtree, B.F., Miller, W.L., Eds (1999) *Doing qualitative research,* 2nd Edition, Thousand Oaks, Sage, pp 3-30.

Mitchell, A., Cormack, M. (1998) Towards a Model of Treatment in Health Care, in Mitchell, A.,Cormack, M., Eds (1998) *The therapeutic relationship in complmentary health care,* Edingburgh, Churchill Livingstone, pp 29-42.

Mok, E., Martinson, I. (2000) Empowerment of Chinese Patients with Cancer through Self-Help Groups in Hong Kong, *Cancer Nursing,* 23 (3) pp 206-213.

Mok, E., Martinson, I., Wong, T.K.S. (2004) Individual Empowerment among Chinese Cancer Patients in Hong Kong, *Western Journal of Nursing Research,* 26 (1) pp 59-75.

Morgan, I.S., Marsh, G.W. (1998) Historic and Future Promotion Contexts for Nursing, *Image, Journal of Nursing Scholarship,* 30 (4) pp 379-383.

Morra, L.G.., Friedlander, A.C. (1999) Case Study Evaluations, *Working paper series, No. 2,* Washington, D. C., The World Bank.

Morrow, R., Brown, D.D. (1994) *Critical Theory and Methodology,* Thousand Oak, Sage.

Morse, J.M. (1991a) Approaches to Qualitative-quantitative Methodological Triangulation, *Nursing Research,* 40 (1) pp 120-123.

Morse, J.M. (1991b) Negotiating Commitment and Involvement in the Nurse-patient Relationship, *Journal of Advanced Nursing,* 16 pp 455-468.

Morse, J.M. (2000) Researching Illness and Injury: Methodological considerations, *Qualitative Health Research,* 10 (4) pp 538-546.

Morse, J.M., Field, P.A. (1995) *Qualitative Research Methods for Health Professionals*, 2nd Edition, Thousand Oaks, Sage.

Morse, J.M., Mitcham, C. (2002) Exploring Qualitatively Derived Concepts: Inducetive-deductive methods, *International Journal of Qualitative Methods,* 1 (4) [Online] 20 June 2004, http://www.ualberta.ca/~ijqm.

Muhlhauser, I., Berger, M. (2002) Patient Education – Evaluation of a complex intervention, *Diabetologia,* 45 pp 1723-1733.

Naidoo, J., Wills, J. (2000) *Health Promotion: Foundations for practice*, 2nd Edition, London, Bailliere Tindall.

Nigel, C. (1991) *An Illustrated History of Hong Kong,* Hong Kong, Open University Press.

Norris, S.L., Lau, J., Smith, S.J., Schmmid, C.H., Engelgau, M.M. (2002) Self-Management Education for Adults with Type 2 Diabetes: A meta-analysis of the effect on glycemic control, *Diabetes Care,* 25 (7) pp 1159-1171.

Norton, L. (1998) Health Promotion and Health Education: What role should the nurse adopt in practice? *Journal of Advanced Nursing,* 28 (6) pp 1269-1275.

Nunnally, J.C. (1994) *Psychometric Theory*, 3rd Edition, McGraw Hill, New York.

Nutbeam, D. (1998) Evaluating Health Promotion – Progress, problems and solutions. *Health Promotion Internation, 13*(1), pp 27-44.

Nyatanga, L., Dann, K. (2002) Empowerment in Nursing: The role of philosophical and psychological factors, *Nursing Philosophy, 3*, 234-239.

Ong, L.M.L., De Haes, J.C.J.M., Hoos, A.M., Lammes, F.B. (1995) Doctor-Patient Communication: A review of the literature, *Social Science and Medicine,* 40 (7) pp 903-918.

Ozer, E.M., Bandura, A. (1990) Mechanisms Governing Empowerment Effects: A self-efficacy analysis, *Journal of Personality and social Psychology,* 58 (3) pp 472-486.

Padgett, D., Mumford, E., Hynes, M., Carter, R. (1988) Meta-Analysis of the Effects of Educational and Psychosocial Interventions on Management of Diabetes Mellitus, *Journal of Clinical Epidemology,* 41 (10) pp 1007-1030.

Paterson, B. (2001) Myth of Empowerment in Chronic Illness, *Journal of Advanced Nursing,* 34 (5) pp 574-581.

Paterson, B.L., Thorne, S., Dewis, M. (1998) Adapting to and Managing Diabetes, *Journal of*

Nursing Scholarship, 30 (1) pp 57-62.

Paterson, E.H. (1987) *A Hospital for Hong Kong,* Hong Kong, The Nethersole Board of Hong Kong.

Patton, M.Q. (2002) *Qualitative Evaluation and Research Methods,* 3rd Edition, New Delhi, Sage Publications.

Pawson, R., Tilley, N. (1997) *Realistic Evaluation*, London, Sage.

Peters, M., Abu-Saas, H.H., Vydelingum, V., Murphy, M. (2002) Research into Headache: The contribution of qualitative methods, *Headache: Journal of Head and Face,* 42 (10) pp 1051-1059.

Pill, R., Stott, N.C.H., Rollnick, S.R., Rees, M.E., (1998) A Randomised Trial of an Intervention Designed to Improve the Care Given in General Practice to Type 2 Diabetic Patients: Patient outcomes and professional ability to change behaviour, *Family Practice,* 15 (3) pp 229-235.

Pill, R., Rees, M.E.,Stott, N.C.H., Rollnick, S.R. (1999) Can Nurses Learn to Let Go? Issues Arising from an Intervention Designed to Improve Patients' Involvement in their Own Care, *Journal of Advanced Nursing,* 29 (6) pp 1492-1499.

Piper, S.M., Brown, P.A. (1998) The Theory and Practice of Health Education Applied to Nursing: A bi-polar approach, *Journal of Advanced Nursing,* 27 pp 383-389.

Poskiparta, M., Kettunen, T., Liimatainen, L. (1998) Reflective Questions in Health Counselling, *Qualitative Health Research,* 8 (5) pp 682-693.

Poskiparta, M., Liimatainen, L., Kettunen, T. (1999) Nurses' Self-reflection via Videotaping to Improve Communication Skills in Health Counselling, *Patient Education and Counselling,* 36 pp 3-11.

Poskiparta, M., Kettunen, T., Liimatainen, L. (2000) Questioning and Advising in Health Counselling: Results from a study of finnish nurse counsellors, *Health Education Journal,* 59 pp 69-89.

Poskiparta, M., Liimatainen, L., Kettunen, T., Karhila, P. (2001) From Nurse-centered Health Counselling to Empowerment Health Counselling, *Patient Education and Counselling,* 45 pp 69-79.

Powers, P. (2003) Empowerment as Treatment and the Role of Health Professionals, *Advances in Nursing Science, 26* (3) pp 227-237.

Price, M.J. (1989) Qualitative Analysis of the Patient-provider Interactions: The patient's perspective, *Diabetes Educator,* 15 (2) pp 144-148.

Proctor, S. (1998) Linking Philosophy and Method in the Research in the Research Process: The case for realism, *Nurse Researcher,* 5 (4) pp 73-90.

Rappaport, J. (1984) Studies in Empowerment: Introduction to the issue. *Prevention in Human Services,* 3 pp 1-7.

Rawson, D. (1992) The Growth of Health Promotion Theory and its Rational Reconstruction:

Lessons from the philosophy of science, in Bunton, R., Macdonald, G., Eds (1992) *Health promotion: Disciplines and diversity*, London, Routledge, pp 202-224.

Redman, B.K. (2005) The Ethics of Self-Management Preparation for Chronic Illness, *Nursing Ethics,* 12 (4) pp 361-369.

Rice, P.L., Ezzy, D. (1999) *Qualitative Research Methods*, Oxford, Oxford University Press.

Riege, A.M. (2003) Validity and Reliability Tests in Case Study Research: A literature review with "hands-on" applications for each research phase, *Qualitative Market Research: An International Journal*, 6 (2) pp 75-86.

Rimal, R.N. (2000) Closing the Knowledge-behavior Gap in Health Promotion: The mediating role of self-efficacy, *Health Communication,* 12 (3) pp 219-237.

Ritholz, M., Jacobson, A. (1998) Living with hypoglycemia, *Journal of General Internal Medicine,* 13 (12) pp 799-804.

Robinson, S., Hill, Y. (1998) The Health Promoting Nurse, *Journal of Clinical Nursing,* 7 (3) pp 232-238.

Rodwell, C.M. (1996) An Analysis of the Concept of Empowerment, *Journal of Advanced Nursing,* 23 (2) pp 305-313.

Rogers, A., Kennedy, A., Nelson, E., Robinson, A. (2005) Uncovering the Limits of Patient-centredness: Implementing a self-management trial for chronic illness, *Qualitative Health Research, 15* (2) pp 224-239.

Rootman, I., Goodstadt, M., Hyndman, B., McQueen, D., Potvin, L., Sprigntt, J. (2001) *Evaluation in Health Promotion: Principles and perspectives,* Copenhagen, Regional Office of WHO.

Rost, K.M., Flavin, K.S., Cole, K., McGill, J.B. (1991) Change in Metabolic Control and Functional Status after Hospitalisation, *Diabetes Care,* 14 (10) pp 881-889.

Roter, D., Larson, S. (2002) The Roter Interaction Analysis System (RIAS): Utility and flexibility for analysis of medical interactions, *Patient Education and Counselling,* 46 pp 243-251.

Roter, D.L., Hall, J.A., Katz, N.R. (1988) Patient-Physician Communication: A descriptive summary of the literature, *Patient Education and Counceling,* 12 pp 99-119.

Roter, D.L. Stashefsky-Margalit, R., Rudd, R. (2001) Current Perspectives on Patient Education in the US, *Patient Education and Counceling,* 44 pp 79-86.

Rush, K. (1997) Health Promotion Ideology and Nursing Education, *Journal of advanced nursing,* 25 (6) pp 1292-1298.

Sandelowski, M. (1996) The Problem of Rigor in Qualitative Research, *Advances in Nursing Science,* 8 (3) pp 27-37.

Sandelowski, M. (2000) Focus on Qualitative Methods. Combining Qualitative Sampling, Data Collection, and Analysis Techniques in Mixed-Method Studies, *Research in Nursing and Health,* 22 (1) pp 79-87.

Sarkadi, A., Rosenqvist, U. (1999) Study Circles at the Pharmacy – A new model for diabetes education in groups, *Patient Education and Counselling,* 37 pp 89-96.

Schwartz, M.S., Schwartz, C.G. (1995) Problems in Participant Observation, *American Journal of Sociology,* 60 (4) pp 343-353.

Seidman, I. (1998) Why Interview? in Seidman, I., Ed (1998) *Interviewing as qualitative research,* New York, Teachers College Press, pp 1-8.

Shattell, M. (2004) Nurse-patient Interaction: A review of the literature, *Journal of Clinical Nursing* 13 pp 714-722.

Shearer, N.B.C. (2004) Relationships of Contextual and Relational Factors to Health Empowerment in Women, *Research and Theory for Nursing Practice: An International Journal,* 18 (4) pp 357-370.

Shih, F.J. (1996) Concepts Related to Chinese Patient's Perceptions of Health, Illness and Person: Issues of conceptual clarity, *Accident and Emergency Nursing,* 4 pp 208-215.

Shih, F.J. (1998) Triangulation in Nursing Research: Issues of conceptual clarity and purpose, *Journal of Advanced Nursing,* 4 (3) pp 631-641.

Shilling, C. (2002) Culture, the 'Sick Role' and the Consumption of Health, *British Journal of Sociology,* 53 (4) pp 621-638.

Shiu, A.T.Y. (2004) Sense of Coherence amongst Hong Kong Chinese Adults with Insulin-treated Type 2 Diabetes, *International Journal of Nursing Studies,* 41 (4) pp 387-396.

Shiu, A.T.Y., Li, S.M., Thompson, D.R. (2005) The Concurrent Validity of the Chinese Version of the Diabetes Empowerment Scale. *Diabetes Care,* 28 (2) pp 498-499.

Shiu, A.T.Y., Twinn, S.F., Holroyd, E. (1999) The Contribution of Nursing to an Interprofessional Community-based Rehabilitation Team: Perceptions of nurses, patients and carers, *Patient Education Journal of Interprofessional Care,* 13 (1) pp 65-75.

Shiu, A.T.Y., Wong, R.Y.M. (2000) Fear of Hypoglycemia Among Insulin-Treated Hong Kong Chinese Patients: Implications for diabetes education, *Patient Education and Counselling,* 41 pp 251-261.

Shiu, A.T.Y., Wong, R.Y.M. (2002) Fears and Worries Associated with Hypoglycaemiam and Diabetes Complications: Perceptions and experience of Hong Kong Chinese clients, *Journal of Advanced Nursing,* 39 (2) pp 155-163.

Shiu, A.T.Y., Wong, R.Y.M., Thompson, D.R. (2003) Development of a Reliable and Valid Chinese Version of the Diabetes Empowerment Scale, *Diabetes Care,* 26 (10) pp 2817-2821.

Sigurdardottir, A.K. (2005) Self-care in Diabetes: Models of factors affecting self-care, *Journal of Clinical Nursing,* 14 (5) pp 301-314.

Silverman, D. (2000) *Doing Qualitative Research: A practical handbook,* London, Sage Publications.

Simons, R., Elias, C. (1994) The Study of Client-provider Interactions: A review of methodological issues, *Studies in Family Planning,* 25 (1) pp 1-17

Sindall, C. (2001) Health Promotion and Chronic Disease: Building on the Ottawa Charter, not betraying it? Editorial. *Health Promotion International,* 16 (3) pp 215-217.

Sleath, B., Roter, D., Chewning, B., Svarstad, B. (1999) Asking Questions About Medication: Analysis of physician-patient interactions and physician perceptions, *Medical Care,* 37 *(*11) pp 1169-1173.

Smith, P., Masterson, A., Lyold Smith, S. (1999) Health Promotion Versus Disease and Care: Failure to establish "Blissful Clarity" in British nurse education and practice, *Social Science and Medicine,* 48 pp 227-239.

Snoek, F.J. (2003) Improving Quality of Life in Diabetes: How effective is education? *Patient Education and Counselling,* 51 pp 1-3.

Spector, R. E. (2004). *Cultural Diversity in Health and Illness* (6 ed.). Upper Saddle River, Pearson/Prentice Hall.

Stake, R.E. (1995) *The Art of Case Study Research*, London, Sage.

Stamler, L.L., Cole, M.M., Patrick, L.J. (2001) Expanding the Enablement Framework and Testing An Evaluation Instrument For Diabetes Patient Education, *Journal of Advanced Nursing,* 35 (3) pp 365-372.

Steed, L., Cooke, D., Newman, S. (2003) A Systematic Review of Psychosocial Outcomes Following Education, Self-Management and Psychological Interventions in Diabetes Mellitus, *Patient Education and Counselling,* 51 pp 5-15.

Stewart, M.A. (1995) Effective Physician-patient Communication and Health Outcomes: A review, *Canadian Medical Association Journal,* 152 (9) pp 1423-1433.

Strecher, V.J., DeVellis, B.M., Becker, M.H., Rosenstock, I.M. (1986) The Role of Self-efficacy in Achieving Health Behavior Change, *Health Education Quarterly,* 13 (1) pp 73-92.

Street, R.L., Piziak, V.K., Carpentier, W.S., Herzog, J., Hejl, J., Skinner, G., McLellan, L. (1993) Provider-Patient Communication and Metabolic Control, *Diabetes Care,* 16 (5) pp 714-721.

Thompson, T.D.B. (2004) Can the Caged Bird Sing? Reflections on the Application of Qualitative Research Methods to Case Study Design in Homeopathic Medicine, *BioMed Central Medical Research Methodology, 4* (4) pp 1-9.

Thorne, S., Paterson, B. (2001) Health Care Professional Support for Self-care Management in Chronic Illness: Insights from diabetes research, *Patient Education and Counselling,* 42 pp 81-90.

Thorne, S.E., Harris, S.R., Mahoney, K., Con, A., McGuinness, L. (2004) The Context of Health Care Communication in Chronic Illness, *Patient Education and Counselling,* 54 pp 299-306.

Thurmond, V.A. (2001) The Point of Triangulation, *Journal of Nursing Scholarship,* 33 (3) pp 253-258.

Tones, K (1998) Health Education and Promotion Health: Seeking wisely to empower, in Kendall, S., Ed (1998) *Health and empowerment: Research and practice,* London, Arnold, pp 57-90.

Tones, K. (2000) Evaluating Health Promotion: A tail of three errors, *Patient Education and Counselling,* 3 pp 227-236.

Tones, K., Green, J. (2004) *Health Promotion: Planning and strategies*, Thousand Oaks, Sage.

Tones, K., Tilford, S. (1994) *Health Education: Effectiveness, efficiency, and equity,* 2nd Edition, London, Chapman and Hall.

Tones, K., Tilford, S. (2001) *Health Promotion: Effectiveness, efficiency and equity,* 3rd Edition, Cheltenham, Nelson Thornes.

Tripp-Reimer, T. (1996) Reconceptualizing the Construct of Health: Integrating emic and etic perspectives. In Kenney, J.W., Ed (1996) *Philosophical and theoretical perspectives for advanced nursing practice,* London, Jones and Bartlett, pp 187-198.

Tsai, D.F.C. (2001) How Should Doctors Approach Patients? A Confucian Reflection on Personhood, *Journal of Medical Ethics*, 27 pp 44-50.

Tsai, D.F.C. (2005) The Bioethical Principles and Confucius' Moral Philosophy, *Journal of Medical Ethics*, 31 pp 159-163

Twinn, S., Lee, D.T.F. (1997) The Practice of Health Education in Acute Care Settings in Hong Kong: An exploratory study of the contribution of registered nurse, *Journal of Advanced Nursing,* 25 pp 178-185.

United Kingdom Prospective Diabetes Study Group (1998) Tight Blood Glucose Control and Risk of Macrovascular and Microvascular Complications in type 2 Diabetes: UKPDS 38, *British Medical Journal,* 317 (7160) pp 703-712.

van Dam, H.A., van der Horst, F., van den Borne, B., Pyckman, R., Crebolder, H. (2003) Provider-patient Interaction in Diabetes Care: Effects on patient self-care and outcomes. A systematic review, *Patient Education and Counselling,* 51 pp 17-28.

van Dulmen, A., Verhaak, P.F.M., Bilo, H.J.G. (1997) Shifts in Doctor-patient Communication during a Series of Outpatient Consultations in Non-insulin-dependent Diabetes Mellitus, *Patient Education and Counselling,* 30 pp 227-237.

Verhaak, P.F.M., Bensing, J.M., van Dulmen, A.M. (1998) Communication in Health Care, *Patient Education and Counselling,* 34 pp S1-S4.

Vijan, S., Stevens, D.L., Herman, W.H., Funnell, M.M., Standiford, C.J. (1997) Screening, Prevention, Counselling, and Treatment for the Complications of Type 2 Diabetes Mellitus. Putting Evidence into Practice, *Journal of General Internal Medicine,* 12 (9) pp 567-80.

Vinicor, F. (2004) The Future of Diabetes: What is there besides new medicines? *Clinical Diabetes* 22(2) pp 94-96.

Visser, A., Snoek, F. (2004) Perspectives on Education and Counselling for Diabetes Patients, *Patient Education and Counselling,* 53 pp 251-255.

Visser, A., Wissow, L. (2003) Editorial: From patient education to communication in health care, *Patient Education and Counselling,* 50 pp 227-228.

Wainwright, P., Thomas, J., Jones, M. (2000) Health Promotion and the Role of the School Nurse: A systematic review, *Journal of Advanced Nursing,* 32 (5) pp 1083-1091.

Weiss, J., Hutchinson, S.A. (2000) Warnings about Vulnerability in Clients with Diabetes and Hypertension, *Qualitative Health Research,* 10 (4) pp 521-537.

Wellard, S.J., Turner, de S., Bethune, E. (1997) Nurses as Patient-teachers: Exploring current expressions of the role, *Contemporary Nurse,* 7 (1) pp 12-17.

Whitehead, D. (1999) The Nature of Health Promotion in Acute and Community Settings, *British Journal of Nursing,* 8 (7) pp 463-467.

Whitehead, D. (2001) Health Education, Behavioural Change and Social Psychology: Nursing's contribution to health promotion, *Journal of Advanced Nursing,* 34 (6) pp 822-832.

Whitehead, D. (2003a) Beyond the metaphysical: Health-promoting existential mechanisms and their impact on the health status of clients. *Journal of Clinical Nursing, 12,* 678-688.

Whitehead, D. (2003b) Health Promotion and Health Education Viewed as Symbiotic Paradigms: Bridging the theory and practice gap between them, *Journal of Clinical Nursing,* 12 pp 796-805.

Whitehead, D. (2003c) Incorporating Socio-political Health Promotion Activites in Clinical Practice, *Journal of Clinical Nursing,* 12 pp 668-677.

Whitehead, D. (2004) Health Promotion and Health Education: Advancing the concepts, *Journal of Advanced Nursing,* 47(3) pp 311-320.

Whitehead, D. (2005) Guest Editorial: Empirical or tacit knowledge as a basis for theory development, *Journal of Clinical Nursing,* 14 pp 143-144.

Whittemore, R. (2000) Strategies to Facilitate Lifestyle Change Associated with Diabetes Mellitus, *Journal of Nursing Scholarship,* 32 (3) pp 225-232.

Whittemore, R., Chase, S., Mandle, C.L., Roy, C.S. (2001) The Content, Integrity and Efficacy of a Nurse Coaching Intervention in Type 2 Diabetes, *Diabetes Educator,* 27 (6) pp 887-898.

Wild, S., Goglic, G., Green, A., Sigree, R., King, H. (2004) Global Prevalence of Diabetes, *Diabetes Care,* 27 (5) pp 1047-1053.

Willems, S., De Maesschalck, S., Deveugele, M., Derese, A., De Maeseneer, J. (2005) Socio-Economic Status of the Patient and Doctor-Patient Communication: Does it make a difference? *Patient Education and Counselling,* 56 (2005) pp 139-146.

Williams, G.C., Freedman, Z.R., Deci, E.L. (1998a) Supporting Autonomy to Motivate Patients with Diabetes for Glucose Control, *Diabetes Care,* 21 (10) pp 1644-1651.

Williams, G.C., McGregor, H., King, D., Nelson, C.C., Glasgow, R.E. (2005a) Vairiation in Perceived Competence, Glycaemic Control, and Patient Satisfaction: Relationship to autonomy support from physicians. *Patient Education and Counselling, 57*(1), 39-45.

Williams, G.C., McGregor, H., Zeldman, A., Freedman, Z.R., Deci, D.L., Elder, D. (2005b) Promoting Glycemic Control Through Diabetes Self-Management: Evaluating a patient activation intervention, *Patient Education and Counselling,* 56 pp 28-34.

Williams, G.C., Rodin, G.C., Ryan, R.M., Grolnick ,W.S., Deci, E.L. (1998b) Autonomous Regulation and Long-Term Medication Adherence in Adult Outpatients, *Health Psychology,* 17 (3) pp 269-276.

Williams, G.C., McGregor, H.A., Zeldman, A., Freedman, Z.R., Deci, E.L. (2004) Testing a Self-determination Theory Process Model for Promoting Glycemic Control through Diabetes Self-Management, *Health Psychology,* 23 (1) pp 58-66.

Williams, G.C., Zeldman, A. (2002) Patient-centred Diabetes Self-Management Education, *Current Diabetes Reports,* 2 (2) pp 145-152.

Williams, S., Weinman, J., Dale, J. (1998) Doctor-patient Communication and Patient Satisfaction: A review, *Family Practice,* 15 pp 480-492.

Wills, E.M. (2002) Overview of Grand Nursing Theories, in McEwen, M., Wills, E.M., Eds (2002) *Theoretical basis for nursing*, London, Lippincott Williams and Wilkins, pp 111-124.

Wilson, A., Childs, S. (2002) The Relationship between Consultation Length, Process and Outcomes in General Practice: A systematic review, *British Journal of General Practice,* 52 pp 1012-1020.

Wilson, A., McDonald, P. (1994) Comparison of Patient Questionnaire, Medical Record, and Audio Tape in Assessment of Health Promotion in General Practice Consultations, *British Medical Journal,* 309 (6967) pp 1483-1485.

Wong, F.K.Y. (2001) Senior Clinical Nurses Specialist Pilot Position in Hong Kong, *Clinical Nurse Specialist,* 15 (4) pp 169-176.

Wong, F.K.Y., Lee, W.M. (2000) A Phenomenological Study of Early Nursing Experiences in Hong Kong, *Journal of Advanced Nursing,* 31 (6) pp 1509-1517.

Wong Mukai, C.P.S. (1999) Chinese Perspectives, *Geriatric Nursing,* 20 (1) pp 18-22.

Wong, T.K.S., Pang, S.M.C. (2000) Holism and Caring: Nursing in Chinese health care culture, *Holistic Nursing Practice,* 15 (1) pp 12-21.

Woodcock, A.J., Kinmonth, A.L., Campbell, M.J., Griffin, S.J., Spiegal, N.M. (1999) Diabetes Care from Diagnosis: Effects of training in patient-centred care on beliefs, attitudes and behaviour of primary care professionals, *Patient Education and Counselling,* 37 pp 65-79.

World Health Organisation (1977) *Report on 13th World Health Assembly, 1977, HFA,* Geneva, WHO.

World Health Organisation (1978) *Report on the International Conference on Primary Health Care, Alma-Ata, 6-12 September, 1978,* Geneva, WHO.

World Health Organisation (1984) Health Promotion: A WHO discussion document on the concepts and principles, Reprinted in *Journal of the Institute of Health Education,* 23 (1) pp 1985.

World Health Organisation (1986) *Ottawa Charter on health promotion,* Ottawa, [Online] 1 June 2002, http://www.who.int/hpr/archive/docs/ottawa.html

World Health Organisation (1988) *Adelaide Recommendations on Healthy Public Policy.* Adelaide, [Online] 1 June 2002, http://www.who.int/hpr/archive/docs/adelaide.html

World Health Organisation (1991) *Sundsvall Statement on Supportive Environments.* Sundsvall, [Online] 1 June 2002, http://www.who.int/hpr/archive/docs/sundsvall.html

World Health Organisation (1997) *The Jakarta Declaration on Leading Health Promotion into the 21st century.* Jakarta, Indonesia, July 1997.

World Health Organisation (1998a) *Health for All in the 21st Century.* Geneva, [Online] 1 June 2002, http://www.who.int/archives/hfa/history.htm

World Health Organisation (1998b) *Health Promotion Evaluation: Recommendations to policy-makers. Report of the WHO European Working Group on health promotion evaluation.* Copenhagen, World Health Organisation.

World Health Organisation (1998c) *Health Promotion Glossary*, Geneva, World Health Organisation.

World Health Organisation (1998d) *Regional Plan for Integrated Prevention and Control of Cardiovascular Diseases and Diabetes for Western Pacific, 1998-2003,* Manila, World Health Organisation.

World Health Organisation (1998e) *World Health Assembly Resolution: Health promotion,* Agenda item 20, Geneva, World Health Organisation.

World Health Organisation (2000) *Bridging the Equity Gap.* Maxico, [Online] 1 June 2002, http://www.who.int/hpr/conference…rencereport/

World Health Organisation (2001) *Evaluation in Health Promotion: Principles and perspective.* WHO Regional Publications, European Series, No. 92, Geneva, World Health Organisation.

World Health Organisation (2002a) *Diabetes Mellitus.* WHO Fact Sheet N^{0}138, [Online] 17 Nov 2004, http://www.who.int/mediacentre/factsheets/fs138/en/

World Health Organisation (2002b) *Diabetes: The cost of diabetes,* WHO Fact Sheet N^{0}236 [Online] 17 Nov 2004, http://ww.who.int/mediacentre/factsheets/fs236/en/

World Health Organisation (2003) *Innovative Care for Chronic Conditions,* Geneva, World Health Organisation.

World Health Organisation (2005) *The Bangkok Charter for Health Promotion in a Globalized World.* The 6th Global Conference on Health Promotion, [Online] 2 October 2005, http://www.who.int/healthpromotion/conferences/6gchp/bangkok_charter/en/

Worrell, J.D., McGinn, A., Black, E., Holloway, N., Ney, P. (1996) The RN-BSN Student: Developing a model of empowerment, *Journal of Nursing Education,* 35 (3) pp 127-130.

Yam, B.M.C., Rossiter, J.C. (2000) Caring in Nursing: Perceptions of Hong Kong nurses, *Journal of Clinical Nursing*, 9 pp 293-302.

Yin R.K. (2003a) *Applications of Case Study Research*, 2nd Edition, Applied Social Research Methods Series 34, Thousand Oaks, Sage.

Yin R.K. (2003b) *Case Study Research: Design and methods*, 3nd Edition, Applied Social Research Methods Series 5, Thousand Oaks, Sage.

Young-Hyman D. (1999) Provider Impact in Diabetes Education, *Diabetes Educator,* 25 (6) pp S34-S42.