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Cognitive Load and the Writing Process:

The Paradox of the Dyslexic Writer

In Higher Education.

Volume Two of Two

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Chapter Seven: Conclusions and Recommendations

I set out at the beginning of this study to answer some questions which had been dogging me for many years (cf. Chapter 3, section 3.4, p. 102-103).

- Does the cognitive architecture make a difference during the writing process?
- Is there a dyslexic, cognitive process model which accounts for the compensatory strategies which occur during the writing process to accommodate working memory and automaticity deficits?
- Do dyslexic writers, in fact, present a different writing profile and is this because of their specific dyslexic deficits?

Like many researchers, I find that this study has provided me with only partial answers and has raised some new issues which require further investigation. It is not possible with the size of this investigation to make definitive conclusions. However, the findings are sufficient to suggest that further explorations ought to be carried out with larger cohorts. It would be valuable to design a further longitudinal research project examining writing behaviour which compared groups of paired students - dyslexic and non-dyslexic, control groups. In this way, it would be possible to analyse not only cognitive profiles but also to determine whether writing behaviour changes over time with experience in the discourse community.

7.1 Is there a dyslexic writing type?

No clear-cut picture has emerged which would strongly point to a dyslexic writing type. Indeed, the evidence supports research in the field which highlights the *individual differences* in writing behaviours (Torrance *et al.*, 1999, Torrance *et al.*, 2000, van Wijk *et al.*, 1999, Ball *et al.*, 1990). Nor is there evidence of a direct parallel between dyslexic writer types and non-dyslexic writer types as developed by Torrance (Torrance *et al.*, 1999). However, one of the clear results of the study is that specific combinations within a cognitive profile have a very particular effect upon one aspect of the writing process – i.e. **text generation**

linked to time on task. Dyslexic students who present with weak working memory capacity, poor speed of information processing AND depressed literacy scores spend a *disproportionate* amount of the whole writing process in text generation. This suggests that the ***combination*** of these deficits has an impact upon the way the student is able to co-ordinate the features of this component of the writing process, which places demands upon the organisation of macro and micro text structures, language retrieval and processing and surface features which rely upon phonological processing automaticity. This clearly resonates with the emerging double deficit theory(Wolf *et al.*, 1999). Burgeoning research studies in Canada, the USA and Europe are pointing to the combination of central processing deficits *combined with* phonological deficits as a causal theory for dyslexia (Wolf *et al.*, 2000). Moves towards the recognition that dyslexia is more than a reading problem are most welcome and suggest answers to many puzzling difficulties presented by adult dyslexic students.

The results of this research also demonstrate that deficits in working memory capacity and storage, the speed at which cognitive operations can be performed and residual phonological difficulties impinge upon efficiency and effectiveness in performing written tasks. This is especially the case when the writing environment is dictated by 'knowledge-transforming' expectations, as is the case for HE students. **All** the students in this study experienced difficulties of one sort or another during the writing process which can be directly attributable to deficits in their individual, cognitive profile (cf. Chapter 6, sections 6.3 and 6.6). As discussed in Chapter 6, section 6.3, the cluster analysis of the cognitive profiles demonstrates weaknesses in working memory capacity and speed of processing with all the students in this study. Low scores in these indices are measured against performance in the verbal and perceptual indices of the WAIS. The importance of the low scores in these areas must not be overlooked. Students who function at the 99th percentile for some cognitive tasks would be expected to perform at a 'high average' or above for the majority of the items in the WAIS sub-tests. Yet, the data show a different picture.

Diagnostic analysis of performance on standardised tests for intelligence, cognitive functioning and literacy demonstrated discrepancies with all the students (cf. Chapter 5 for discussion of individual profile scores.) The WAIS index scores provide measures of cognitive competence (cf. Chapter 6, section 6.2), which enable the assessor not only to identify cognitive deficit but also to link this to academic performance. Thus, deficits in the working memory capacity affect a person's ability to multi-task (cf. Chapter 6, section 6.2.2). This becomes significant when taken in the context of text generation at a knowledge-transforming level of production (cf. Chapter 6, section 6.6 and 6.7 – discussion of writing behaviours). As the analysis of the real-time writing logs shows, all the students worked sequentially, performing a maximum of two of the components of the writing process simultaneously (cf. Chapter 6, sections 6.5 and 6.6 – discussion of writing behaviours).

These findings link back to a combination of theories of dyslexia discussed in chapter two: most notably, cerebellar deficit theory (Fawcett *et al.*, 1999, Fawcett, 2001); phonological deficit theory (Vellutino, 1979, Snowling *et al.*, 1986, Snowling, 1987); working memory and writing (Kellogg, 1996); and dyslexic automatisation deficit (DAD) theory (Fawcett *et al.*, 1994, 1995). Thus, the neural signatures of these dyslexic students lead me to suggest that more attention needs to be given to cognitive cluster deficits and their impact upon the writing process.

Thus, cognitive functioning, in conjunction with a reduction in the rapid processing system (deficits in rapid access routes and automatisation), associated with verbal and written language production, has an effect upon text generation and time on task.

7.2 Patterns of behaviour

Although there are only seven dyslexic students in this study, patterns of behaviour have emerged which relate to the behaviour of Tristan and Isolde who were, in part, responsible for my quest. Some of the patterns relate to *strategic*

functioning. By this I mean their top-down control of the executive resources which affects performance in the writing process. Thus, the difficulties experienced by these dyslexic writers in macro and micro text organisation and multi-tasking facility have to be managed by choice of strategy, i.e. by strategic functioning. Other patterns of writing behaviour govern *performance-monitoring* functions during this process. These relate to the compensatory strategies which the students have evolved (or have been taught) and the employment of metacognition. (These will be discussed in more detail later in the chapter, section 7.3.)

7.2.1 Strategic Functioning

Strategic functioning has been seen to be an important factor in the writing process. However, there are few studies in the HE context of *this* aspect of the dyslexic experience. Interest in dyslexic students in HE is increasing. Studies of speed of text production (mechanical and compositional), analysis of dyslexic spelling and grammatical errors and assessment of lexical choices made by dyslexic students in HE are emerging (Singleton *et al.*, 2001, Hatcher, 2001, Farmer *et al.*, 2001, Hughes *et al.*, 1994). Other studies, relating to dyslexic students' writing in HE have demonstrated a) structural weaknesses with dyslexic students' text (Farmer *et al.*, 2002); b) that dyslexic students' essays are shorter than their non-dyslexic peers (Sterling *et al.*, 1998); and c) that dyslexic students' use of the spelling checkers on computers increases ability to identify errors during proof-reading stages (McNaughton *et al.*, 1997). Research which examines dyslexic student experiences at university, and the type of support they have received, has also gained attention (Riddick *et al.*, 1999, Palfreman-Kay, 2001). Yet, studies of the writing process and the dyslexic students' performance are rare. McLoughlin et al comment upon the 'dearth of information' (McLoughlin *et al.*, 2002), p. 64, while others have commented that:

> " The process of writing ..... has not generally been considered in any of the literature on dyslexic writing."
>
> Farmer *et al.*, 2002, p.41

This thesis hopes to redress the balance and initiate further investigations. Two factors have emerged which are crucial to the cognitive load and the dyslexic writer in HE: **time on task and macro and micro organisation**. All the students spent significantly longer on the task than their non-dyslexic peers. This can be explained by the deficits in the working memory index and the speed of processing index. There are also limitations in their ability to carry out multi-tasking. Research has highlighted the fact that the demands of writing absorb cognitive resources and have an effect upon the way people organise themselves during this process (McCutchen, 1996). The dyslexic students in this study reduce cognitive overload by limiting the number of central executive tasks at any one time (cf. Examination of real-time writing logs in Chapter 6 and data in Appendix 6). The findings of this study of the compensatory strategies developed by the students in their writing behaviours in response to the task demands chronicle how students with specific cognitive deficits perform (cf. Chapter 6, section 6.6). However, this is at the expense of efficiency, as can be seen in the overall time taken to complete the written task (cf. Chapter 6, table 7).

A superficial examination of what is happening might lead some to suggest that the dyslexic student operates in the knowledge-telling mode in a 'do this', 'do that' manner. But by triangulation of the data - the text product, the real-time data logs and the individual interviews – it can be seen that the students are indeed closer to the knowledge-transforming model, except that they work on a limited amount of text generation at a given time. In other words they do not operate the two domains of content and discourse separately but attempt the more difficult organisational process of combining decisions about these as they are generating text. However, as if unconsciously aware of their limitations in processing, speed and resource capacity, they compensate by minimising the task. They perform some strategic functioning but restrict the task to a manageable 'episode'. This might explain why the time on task and text generation are extended for the dyslexic writer. Thus, they do not limit the 'multiple constraints that compete for writers' attention' (Torrance *et al.*, 1999a) during the task but, rather, they restrict the parameters of the task into small episodes (cf. Appendix 6). This might account for how they can perform as expert writers despite their

cognitive deficits. The more strategic they are in their organisation at both macro and micro levels of text generation, the more they can increase their ability to meet the specific demands placed upon them in the HE writing environment.

What this study does show is that intuitive ways of working need to be harnessed so that greater efficiency is achieved with a reduction in time on task and anxiety (Chapter, 6, section 6.7 – compensatory writing behaviour. In particular, there is a discussion of the way of working on text with Student A,; use of visualisation software for planning with Student C, Figure 44; and procedural organisation with Students A and C). Additionally, the development of rapid access routes would mean that capacity and storage were not compromised so much. (This will be examined in more detail later in the chapter when recommendations are discussed.) In this way it may be possible to free up cognitive executive resources to enable these students to reach their potential more effectively and perform as 'expert' writers.

Linguistic processing difficulties, allied to weak retrieval and faulty mapping processes, slow down the systems and not only have an impact upon time on task and text generation but also create anxiety. The social environment in which they are writing (the academic discourse rules) emphasises the need to avoid plagiarism in their writing. Five of the seven students expressed their concern with their ability to circumvent or eradicate the possibility of plagiarism occurring (cf. Chapter 6, section 6.7 discussion of writing behaviours). What was most disconcerting for them was that, because of the dyslexic profile and their problems with language and memory in particular, they were not even aware that they had breached the rules (cf. Chapter 6, section 6.7.3, Student C). In part this is because their summary skills were undeveloped (cf. Chapter 6, Student A, section 6.7.1; Student B, section 6.7.2; Student E, section 6.7.5; and Student F, section 6.7.6), but also because they did not have compensatory strategies which would reduce the risk of plagiarism. This has implications for pedagogy.

Some comment upon the concept of the 1996 Hayes and Flower model of a developmental continuum is required. The evidence is not sufficient to

demonstrate that the writing behaviours change radically as writers gain more experience of the writing environment. Indeed, the study shows that the students, despite the range of tasks and their different year groupings, go about the process in much the same way. However, the post-graduate students, who would be expected to demonstrate increased skill performance because of experience, in fact present with the same problems as the less experienced writers.

7.3 What compensatory strategies do dyslexic writers in HE adopt?

There are a number of elements of the writing process over which the students have little or no control: the task environment (the writing task), the writing deadlines and the discourse community in which they find themselves. Nevertheless, many of the students have developed compensatory strategies which were either intuitive or strategic. This is clearly linked with their success and subsequent grading. Two areas of need have emerged: organisational needs and linguistic needs.

7.3.1 Organisational Needs:

Organisation is at the heart of both the Flower and Hayes and the Bereiter and Scardamalia process models. There are many overlays which have to be manipulated within the process in order to function at the expert or knowledge-transforming level. At the heart of this is the abstraction of the activity and the need to move effortlessly from one planning input to another. Organisational difficulties are, in a sense, the over-arching problem for the dyslexic writer and affect every aspect of performance. Attempts have been made by most of the students to rectify and by-pass problems in memory and organisation at all levels: the macro level of essay structure; the micro level of construction of sentence and paragraph; and the physical organisation of their working environment. Many are aware of these difficulties and adopt compensatory strategies and ways of working. For example, the use of mind-mapping software not only supports weaknesses in essay structure and sequencing but also enables the student to move more efficiently between macro and micro elements of planning and text

generation (cf. Chapter 6, section 6.7 on writing behaviours, with particular reference to the experiences of Students B, E, F and G). Primary tasks, such as word usage and spelling, do distract cognitive capacity with these students and could compromise higher-order processing. However, the way in which they operate compensates to some extent.

Many researchers differentiate between 'planning to do' and 'planning to say' (Flower *et al.*, 1980, Hayes, 1996) or 'content planning' and 'rhetorical planning' (Carey *et al.*, 1989), and this can be seen to be separated into discrete operations in the case of dyslexic writers. They have evolved systems to compensate. Students B, E, F and G needed to have a global goal to ensure greater efficiency of working. Thus, these holistic, or global, thinkers used visual maps or associated software to provide a template to help them to *organise* the macro elements of the process (planning to do) and to support weak memory and sequencing skills (cf. Chapter 6, section 6.7). This evidence **contradicts other studies** which were conducted with non-dyslexic writers and, therefore, points to differences in cognitive architecture, which may be unique to the dyslexic profile (Kellogg, 1990, Torrance *et al.*, 2000).

> " However, there does not appear to be strong experimental evidence in support of the benefits of either mental planning (planning without the production of an outline) or of 'mindmapping' techniques in which content is represented as non-linear structures."
>
> Torrance *et al.*, 2000, p. 184

Some of the students had been told that analysing the task was important (cf. Students B and E, Chapter 6, section 6.7.2, 6.7.5). Few of them had any understanding of why this was necessary and, in particular, why this was crucial for a dyslexic writer. All of the students realised that this course of action helped them to cope with the complexity of the task. It can be surmised from students' commentaries (cf. Appendix 3) that many lacked explicit knowledge, i.e. metacognitive awareness, and, in a sense, they were not, therefore, maximising their opportunities. This will be discussed later in the chapter.

In chapter three, I discussed the notion of categorising writers as 'top-down or bottom-up' in the approach to the whole process (see Fig. 22). Most of the students in this study appear to adopt a top-down method as a preference. Indeed, five students, viz., B, D, E, F and G, found it impossible to manage and co-ordinate the task unless they had a global framework, which helped them not only to organise themselves in data collection but also gave them direction in terms of drawing ideas together (cf. Chapter 6, section 6.7 – writing behaviours). This gestalt approach to the writing process was essential in getting them started and keeping them on track. It was also a means of helping them to manipulate the macro and micro organisation of the process. Only student C fell into the 'stream of consciousness' approach. She preferred the freedom of the organic growth of her ideas (cf. Chapter 6, section 6.7.3). This may be something to do with the topic of the essay which required her to state her own opinions and evaluations. Often students feel that the fetters of the essay title are unleashed when they are asked to voice their own opinion! It would be interesting to explore whether the choice of essay and essay title dictated approach or whether the cognitive style was more dominant.

Research to date does not demonstrate that there is a difference in the quality of text produced when writers engage in different types of planning. Many of the studies have been carried out with Primary school children (Scardamalia *et al.*, 1985) and could be dismissed because of the age group involved in this research. Nevertheless, Kozma's study examined the impact of computer-based planning tools with forty-one FE students, and this also showed that there was no improvement in the quality of the text (Kozma, 1991). These findings were reinforced by Torrance et al. who found no association between grade and planning (Torrance *et al.*, 1991). However, I reiterate that these findings did not include dyslexic writers in the research design. Thus, inclusion of dyslexic writers may challenge these findings. Without task analysis, planning systems and tools, the deficits in cognitive architecture are such that they would be unable to operate at the level required in the HE writing environment, and the grades would be affected. Indeed, in this study, Student B demonstrates this point. During her first year she was unaware of effective methods of planning and failed. The essay

which was completed as part of this study gained a pass at Grade C. Some of the improvement could be attributed to the use of more appropriate planning and organisation in the form of a computer-based planning tool such as Inspiration. It is beyond the scope of this research to examine this in detail. What the evidence does exemplify is that the students' grades (Appendix 8) were acceptable to their tutors though not always to them personally, because they expressed annoyance that, for the effort expended, they did not achieve as high a grade as they thought the exertion warranted (cf. Chapter 6, section 6.7.2, Student B, and Chapter 5, section, 5.6.1, Student E).

They use the visualisation techniques of brainstorming and mapping, sometimes linked with colour coding, to enable them to sequence their thoughts (macro) and their sentence constructions (micro). In this way they free up valuable cognitive resources to focus down upon minute aspects of writing and to manipulate the language processing aspects of the task. They work in stages. The initial task analysis and brainstorm provide the students with a means of chunking or breaking up the process into manageable bites. It is as if they are thus enabled to place a spotlight upon each section and work on this to the exclusion of other parts, reducing capacity overload. Once each part has been worked on they can move to the next stage and fit the pieces together. Rather like crafting the individual segments of the jigsaw before refining them to ensure that they all fit together to produce the big picture. This way of working has a knock-on effect with the way some of the students organise their note-making.

Similarly, to prevent themselves from getting overwhelmed with the volume of language with which they are surrounded, many of the students found a *physical* solution to this by categorising information into piles as they went along (cf. Chapter, 6, section 6.7 – discussion of compensatory strategies – Student B, 6.7.2, Student C 6.7.3, Student E, 6.7.5). In this way they were able to obtain an overview of each of the sections and prevent memory overload.

Thus, the students are able to synchronise many operations which are complex in themselves (Just *et al.*, 1992) but which, if taken in total, could be overwhelming

to those who present with the types of cognitive profiles of the students in this research.

> "Writers might adapt to changes in task situations and changes in processes and strategies which means that some cognitive activities might be dominant during certain moments of writing while they are not in other moments."
> Rijlaarsdam *et al.*, 1996, p.107

7.3.2 Literacy/Linguistic needs:

In order to ensure that text quality was not compromised, the students evolved compensatory strategies and systems which provided a multi-sensory environment for working. The voice recognition software and the use of talking spelling and grammar checkers enable dyslexic students to make the most use of the strengths found in their Verbal Processing Index. Weaknesses in language processing and language retrieval systems are thus supported, to ensure that the student is able to operate at a knowledge-transforming level.

In a way this points to an interactive-compensatory model for the writing process which resonates with Stanovich's ideas but in the context of writing rather than with learning to read (Stanovich, 1980). This will be explored further later in this chapter in section 7.4.2. The development of this model, linking reading acquisition and comprehension AND writing process, could lead the way for new directions in pedagogy for dyslexic learners.

7.4 What are the implications for pedagogy – Rationale for Change

Despite the proliferation of research into reading and/or literacy difficulties and **young** dyslexic learners, I feel that we are only at the dawn of exciting advances for **adult** dyslexic learners. Greater understanding of the writing process, the complexity of the cognitive mapping required, double deficit problems of some dyslexic students in HE and the impetus of new technologies for functional magnetic resonance imaging (fMRI) may combine to provide a greater fusion of research and pedagogy.

If dyslexic students in HE are to manage the writing process with greater ease in order to demonstrate their potential more effectively and more efficiently, there is a need to examine how teachers develop children as writers from an early age. The essential nuts and bolts of writing appear in the teaching framework for the National Literacy Strategy (NLS) – grammar and spelling skills feature highly in the rubric for Key Stages 2 and 3, for example. Teaching approaches such as modelling writing in NLS are laudable. However, Beard's distinction between 'authors and secretaries' (Beard, 1993), p. 181is crucial in some ways to teachers' perceptions of the teaching of writing. It reflects the dichotomy of process versus product in much of the teaching of writing and echoes my concerns about the overemphasis on lower-order writing skills *at the expense of* the high-order skills of managing the interchange of micro and macro elements of writing. This proliferates the emphasis on content and communication structures: for example, what information should go into which paragraph and grammatical structures. It stresses the 'what' of writing more than the 'how'. Novice writers fail to develop the skills of the expert writer by treating writing as a unitary process (Galbraith *et al.*, 1999). They divide the process into mechanistic components, which does not sufficiently take into consideration the difficulties experienced by those whose ways of working are apparently random and chaotic and which put overload onto an already weak cognitive resource. There is evidence to suggest this in the way some of the dyslexic writers in this study have approached the written task (cf. Chapter 6, section 6.7 – e.g. Student A, 6.7.1). They have been taught that an essay should be divided into five or six paragraphs with a beginning section, a larger middle section and a conclusion, and they have clung on to this macro-structure as a working model. Thus, there is a need not only to reflect upon how we teach dyslexic writers to **organise the process** but also to develop more effective techniques for coping with the **management of this process**. As Healy Eames reports in her conversations with teachers and pupils, there is a lack of engagement of metacognitive strategies of dyslexic pupils, despite an obvious understanding of the expectation to draft and edit work (Healy Eames, 2002). She posits that writing gains can be increased by a teaching environment in which the learner is actively monitoring progress, i.e. is learning to manage the experience.

Therefore, the role of 'critical literacy', (Healy Eames, 2002), p. 329, a combination of literacy skills and metacognition, requires more attention in the development of dyslexic writers. The role of metacognition is important, particularly with dyslexic learners, who need to be made aware of how they learn (Edgar, 2001, Hunter-Carsch, 2001a, Peer *et al.*, 2001, Wray, 2002). This will enable them to make strategic decisions in planning and organisation to ensure greater efficiency and effectiveness and reduce low self esteem. It is not only about the ability to construct grammatically correct sentences with correctly spelled words but also the ability to make choices from an understanding of one's own literacy practices (macro organisation).

> 'metacognitions in action that help to orchestrate aspects of problem solving'
>
> Hacker, 1998, p. 17

This necessarily involves an understanding of the learning process, which will enable the writer to make appropriate selections for the written context. However, self-monitoring systems need to be ***explicitly*** taught to dyslexic writers. It is not sufficient to tell children to 'check your work to make sure it makes sense'. As the dyslexic students in the study explained, revision and editing are difficult aspects of the process because 'it (the essay) makes sense to me but not to others' (Appendix 3(iii)). They realise the importance of revision and editing and the need to ensure that they can communicate their ideas to others - possibly because this has been stressed frequently by teachers in school - but have no techniques for overcoming their linguistic difficulties nor a system for organising these. The crucial feature here is the explicitness of the process in the teaching context: in other words, the talking aloud of the ***thinking processes*** during writing to bring the goal-setting to the surface. This form of verbalisation, leading to a deeper understanding of one's thinking processes, can substantially increase performance.

> " In addition to metacognitive knowledge about problems, metacognitive knowledge about procedures influences how information is encoded."
>
> Davidson *et al.*, 1998,p. 49

Cognitive strategy instruction (bringing the thinking skills to the surface) requires not only a deeper understanding of the needs of the dyslexic learner but also a clear knowledge of the ways in which expert writers monitor themselves during writing and the decision-making features of their text generation and revision/editing processes. All too often teachers a) have rarely experienced difficulties with writing and so have unconsciously developed skills – the 'caught not taught' school of thought; and b) are operating on automatic pilot when writing and have developed many rapid access route systems which are triggered unconsciously and which compensate for the complexities of writing and resource overload. Although some studies have suggested that those with learning difficulties fail to make use of 'metacognitive control', the research was not specifically directed at those with *specific* learning difficulties, i.e. dyslexia (Englert *et al.*, 1988 in Reid *et al.*, 2002). Knowledge of metascript can support weak organisation and working memory capacity deficits. In this way an awareness of metacognition, metalanguage and self-monitoring will ease the difficulties experienced by our dyslexic writers. There is a need to provide them with independence, allowing them to soar to new heights without the pain and frustration expressed by the students in this study.

> "(the) new process approaches to writing are the emphasis on the goals which texts are designed to satisfy rather than the linguistic characteristics which texts have, and on the variety of processes which are involved in trying to satisfy those goals, including in particular the construction and evaluation of ideas, rather than on the translation of preconceived ideas into text. While learning rules for expression is still an element of learning to write, this is seen as one element among many (the acquisition of knowledge about text) and is a resource to be used within the overall process of writing rather than constituting the fundamental skill of writing."
>
> Galbraith *et al.*, 1999, p. 94

Such approaches must harness the strengths of the random-thinking qualities of the dyslexic, global learner (Klein, 1993) while, at the same time, providing bridges which will lead them to linear structures of communication and also taking into account weaknesses in organisation and language processing. Whilst there is a need to develop approaches for procedural facilitation (witnessed in the NLS in the form of writing frames), the elaboration of decision-making, and its concomitant organisational underpinning, must be expressly taught (Bereiter *et al.*, 1984), but taught in such a way as to harness 'rapid, dynamic, multidimensional thinking' (Hetherington, 2001).

Although research has found no correlation between writing apprehension (fear of writing) and quality of text (Boice, 1985, Madigan, 1996, Harris *et al.*, 1992), the interviews with the dyslexic students showed that negative perceptions of the self as a writer can change performance (cf. Chapter 6, e.g. Student A, section 6.7.1, Student B, section 6.7.2 and Student E, section 6.7.5) which is consistent with other studies(Boice, 1985, Madigan, 1996, Harris *et al.*, 1992). This has implications for pedagogy and teachers may be well advised to consider incorporating the principles of cognitive therapy approaches in conjunction with more mainstream teaching methods.

7.4.1 A New Teaching Paradigm: An Interactive-Compensatory Model for the Teaching of the Writing Process

If we are to do justice to our dyslexic writers, this brave new world must develop a model which utilises their strengths while at the same time supports and, if possible, reduces deficits. Tansley spoke of dyslexia as a 'constellation of behaviours' (Tansley *et al.*, 1981), p.26, and I would like to propose a teaching approach which is a 'constellation of operations' – an interactive compensatory model for the teaching of writing and the development of efficient, expert, dyslexic writers. The model is based on an holistic approach which incorporates the practice of student-centredness, scaffolding (Vygotsky, 1962), metacognition and a recognition of the 'multi-faceted, dynamic nature of dyslexia'

(Hetherington *et al.*, 2001). In this way the dyslexic learners' needs can be placed at the heart of the teaching and learning environment. Thus, ensuring that the paradoxes of the dyslexic writer in HE are addressed.

This teaching model would draw upon the theoretical models of writing process which highlight the importance of goal-generation and problem-solving (Hayes, 1996, Bereiter *et al.*, 1993). Modelling, scaffolding and cognitive strategy instruction (Englert *et al.*, 1991)could be combined to finely craft the idea of a **constellation of operations**. Whilst these teaching methods are not new, it is the *combination* of the approaches, with the emphasis upon handing over control to the dyslexic learner, which are the key features.

7.4.2 A 'Constellation of Operations' – Design to link research evidence to pedagogic model : The Interactive/Compensatory Model of Writing-Process Teaching

This proposed model allows for the different layers of operation in writing so that students can move from one component to the other without fear of compounding dysfunctional organisation. It is a flexible model to account for the need to be able to embed the systems in the curricula context and provide the greatest level of contextualisation, i.e. to teach the skills through the process and the task set rather than concentrating upon the information which is required for the task.

Its starting point is the adaptation of the dyslexic way of working in relation to the demands of the academic writing environment. The essence of the 'interactivity' of the model evolves from the combination of the bottom-up and top-down concepts. Because the starting point is the dyslexic conceptualisation procedures and working, in this sense it is a bottom-up model which is student-driven. However, the teaching methods employed use explicit modelling to develop metacognition, meta-language and meta-skill performance in an environment which promotes success by scaffolding the learning and breaking skill acquisition into manageable steps. In this way, the teacher talks aloud the

decision-making processes and their manipulation to demonstrate macro organisation and the problem-solving skills which are involved in text generation and editing.

My suggested model addresses the paradoxes displayed by the dyslexic writer in HE. It is a model which can be introduced as the young dyslexic writer starts to manage the writing process and can be used initially for small amounts of text generation – one paragraph production (macro organisation) and the resulting sentence-level generation (micro organisation). In this way the young writer learns to co-ordinate *on a small scale* and develops systems for managing organisation, decision-making and language processing. Such an approach incorporates:

- Language networking systems
- Grids for macro and micro organisation
- Staging the process to support sequencing and capacity difficulties
- Systems for harnessing global thinking into linear language processing

This will allow different levels of operation to be mastered and managed yet it is dictated by the different writing demands which are increasingly more complex for the developing writers. In this way the concept of a developmental continuum can be achieved through a model which is dyslexia-friendly but which makes skill acquisition explicit, to ensure that the dyslexic writer learns the features of control of the process. It is based upon the interaction of global to linear (whole to part and part to whole), yet is designed in such a way as to allow for teaching of discrete components, based upon scaffolding and success.

The crucial feature of this teaching approach is the cognitive strategy instruction (CSI) which needs to be an integral part of each of the above separate components. Studies which have explored the use of CSI with school children and expert writers (Bereiter *et al.*, 1993, Carter, 1990) have concluded that such an approach can help develop greater automaticity and 'highly organised schemata' (Carter, 1990), p. 272, or rapid access routes, as I have named them. In

this way students can develop a greater understanding of how to control executive functions to achieve success. This research has shown (cf. the discussion of the writing behaviours in Chapter 6) that, for example, Student A would benefit from this approach to increase his ability to access texts; Student C does not work strategically and therefore may be working ineffectively; Student F spent a disproportionate amount of time on her task which could in part be attributed to a lack of knowledge of cognitive strategy. It could be argued that the next generation of students, who have experienced the NLS, will have more strategic control. It can be said that modelling is incorporated into NLS. However, often it is tackled as a procedural modelling rather than making the thinking processes explicit in order to develop metacognition. By talking aloud the thinking processes, the teacher is able to demonstrate to the dyslexic writer how to develop short-cuts, so that rapid access routes can be moulded and consciously manipulated in the early stages of development as a writer. Thus, the dyslexic learner moves from conscious control to effective choices and on to automatisation as a means of reducing resource overload. It is vital that the dyslexic writer is aware of the choices he makes, so that the techniques can be changed into strategies for operation. In this way he can not only develop compensatory strategies but also make the most effective choices to maximise potential and work efficiently, despite faulty cognitive mapping systems.

Table 9: Proposed Teaching Model

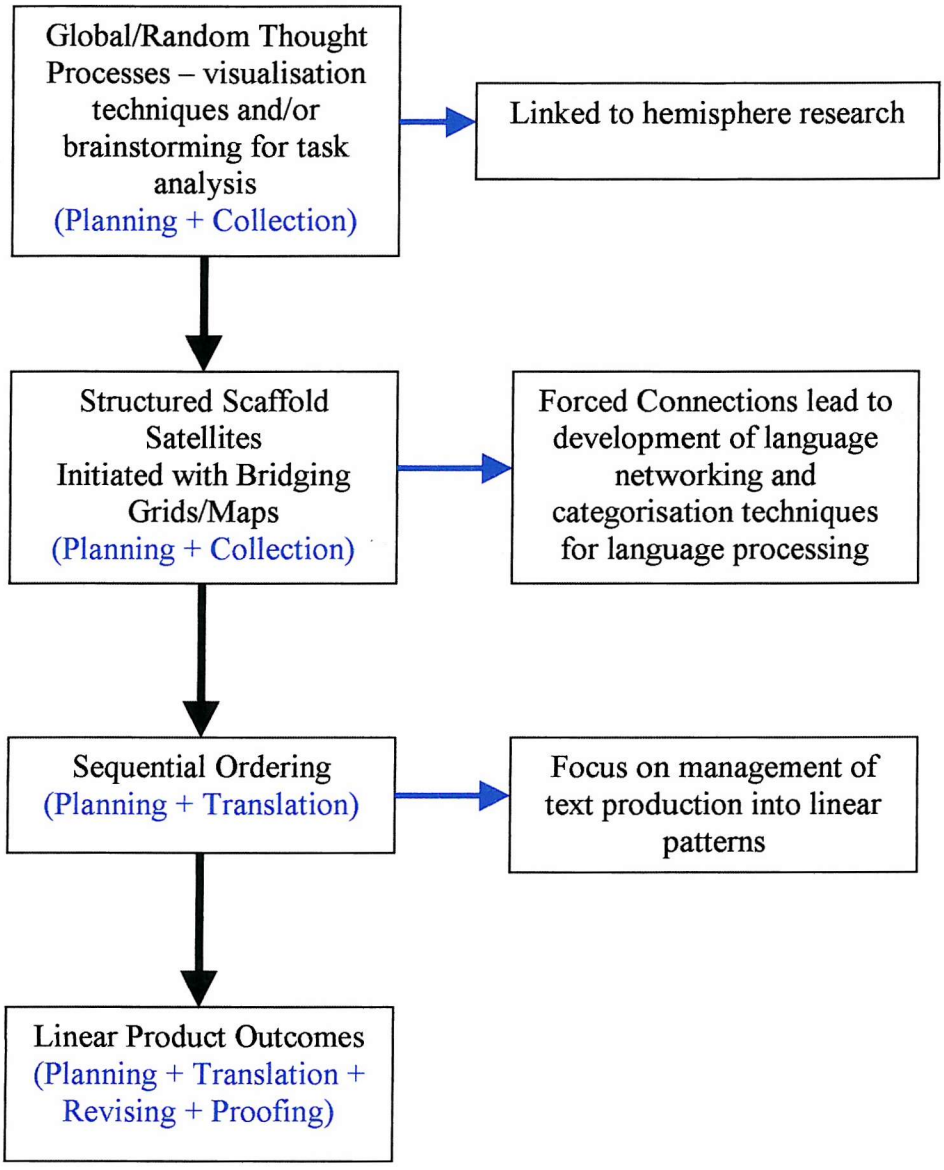

Table 10: A Diagrammatic Representation of the Features of the 'Constellation of Operations', linked to the Dyslexic Cognitive Architecture

Intervention 'Systems'	Links with the Writing Process	Overcoming the Difficulties resulting from cognitive deficit	Cognitive Deficit Scaffold
Teaching Environment	Links to Theoretical Models	Difficulties experienced by Dyslexic Learner	
1. Task Analysis System (TAS)	Planning – macro level initiation. (This has an impact upon many of the subsequent processes). *Decisions* about next phase.	Language processing. Inability to 'operationalise' the language of the task. Inability to link the abstraction of the task language to the concrete operations of going about the organisation of the writing task.	Development of meta-language usage. Development of metacognition. Systemisation of language comprehension. Self-monitoring by self-questioning. Accuracy of 'global picture' of the task.
2. Data Organisation and Gathering Systems (DOGS)	'Operational Grids'. Collecting information. Planning at macro level.	Working memory capacity deficits. Language processing. Information processing and storage.	Provision of a scaffold/framework/grid for macro-organisation. Stages the process within this component to prevent cognitive overload.
3. Text Generation Systems (TGS)	Translation (Text generation/drafting). Decision-making & problem-solving. Revising/editing	Language retrieval. Language processing. Sequencing. Macro & micro organisation. Simultaneous functioning. Working memory capacity.	Stages the management of the sequencing of information. Smooth transition from random to linear structures. Language networking systems – using context and key word information.
4. Text Checking Systems (TCS)	Proof-reading. Revising/editing. Decision-making & problem-solving.	Language retrieval. Language processing. Simultaneous operational functioning – moving between macro and micro elements. Working memory capacity.	Use of multi-sensory software to provide 'individual' environment. Linking global picture to parts of the text structure. Breaking down the operation into manageable chunks. Emphasis on metacognition – explicit self-monitoring systems.

A Rationale for TAS

This teaching model is the result of many years of observation as a specialist tutor supporting dyslexic writers in the difficulties they experience. Students have expressed their exasperation and embarrassment at their inability to work out what was expected of them, despite numerous explanations from teachers. One of the problems for the dyslexic writer is that teachers often respond to the question, 'What do I have to do' by a detailed commentary of the *content* required. It is not the content which is the problem. In fact, what the dyslexic student is really asking for is clarification of the way to go about the whole process. It is, in effect, the mismatch between the abstraction of the language in the task environment and the dyslexic students' conceptualisation of the problem.

Thus, the well-meaning explanation by the teacher often exacerbates the situation. The dyslexic student becomes overloaded by the language of the response, which is verbal and therefore lacks hooks or links to the cognitive style. Because of a history of language processing difficulties, the dyslexic student does not 'see' the hidden clues which are given in the language of the task, and which require inferential skills.

> " For skilled readers, comprehension can be said to require the construction of a mental model in which the formation of inferences acts to link the individual propositions in a unified representation."
>
> Underwood *et al.*, 1996 cited in Hunter-Carsch, 2001b, p. 91.

S/he does not recognise the linkages between this language and the visualisation of the final product. More importantly, I have observed that these students do not have any strategies for coping with unpicking the language.

With this in mind, it is vital to devise a task analysis system (TAS) which meets these specific needs:

a) To unravel language by using non-language stimulators;

b) To provide bridges between the task language and effective systems for organising data/information collection (note-making systems);
c) To link task language to a visualisation of the finished product;
d) To develop a system of self-monitoring which will increase metacognition and enable better transferability of skills.

I have developed such a system over the years with dyslexic students which I have called the 'BUG' technique. This stands for:

B = Box the action word(s)
U = Underline the key features
G = Glance back to check that nothing has been missed.

For example, using an essay title provided by a year 1 Arts undergraduate as part of a coursework assignment:

Evaluate the connection between language and game according to Saussure

To support memory and language retrieval deficits, students are encouraged to develop visual hooks as a memory aid to help translate the task words into action. A scale sign is drawn above 'evaluate' to develop a rapid access route to language processing, utilising the visual channels (Springer *et al.*, 1993, Klein, 1993).Thus, when the student reads the word 'evaluate' it is immediately linked with the idea of weighing up. Of course, over-learning has to be incorporated so that frequently-used subject-specific task words are committed to long-term memory by visual clues or hooks.

If a student has difficulties with language, making decisions about which words are important and which can be discarded can prove problematic. However, if the students are taught ***how*** the expert reader goes about the decision-making process, they can have checking systems of their own. In other words, the importance of cognitive strategy instruction. Thus, the student has to be taught the value of self-questioning as a strategy for ensuring that nothing is overlooked. 'Glancing back' and examining which words have been underlined and, more

importantly, which words have been left out, is accompanied by the prompt, 'does it make a difference to the meaning if I leave this out (or put this in)?'

In this way the communication challenge has been reduced to manageable strategies for problem-solving, whereby the student can take control. It also taps into rapid, multidimensional thinking.

Rationale for DOGS – Data Organisation and Gathering Systems.

'Operational grids' are one method of harnessing the random thought processes whilst moving towards a linear structure. These act as bridges and smooth the organisation of decision-making processes. They act as a buffer to enable the student to control the micro and macro elements of knowledge-transforming.

Using the important words identified in the task question, the student can set up an organisational framework which will help to focus the background reading and categorise the information as the student carries out the collection component of the writing process. This is divided into two stages. First, the student makes decisions about locating the information in the grid. Once all the information has been collected, the student is then able to group this and put into order of writing priority, thus combining the micro and macro elements of text generation. Such organisational grids support executive functioning deficits by chunking and staging the overall complexity of the process.

This example is drawn from a support session with a dyslexic law undergraduate:

"Mentally disordered offenders should be the responsibility of Health rather than the Criminal Justice System." Discuss

Mentally disordered offenders	In favour of (+)	Against(-)	Alternative (?)
Responsibility of Health Service			
Responsibility of Criminal Justice System			

These systems can furnish the type of support which takes into account the demands of the writing process, allied to the cognitive deficits of the dyslexic profile.

7.5 Recommendations

This research highlights the need to find out more about the process of writing but also to examine this in conjunction with dyslexic students. For too long writing and the teaching of writing have been the poor relations both in research and in the classroom. This imbalance needs to be addressed. It could be argued that, with greater awareness of dyslexia, teachers are more able to provide a dyslexia-friendly learning and teaching environment which is more inclusive. I believe that the current NLS framework goes some way to ensuring that this occurs. However, the principles need to be applied not only to all aspects of literacy acquisition but also to discipline-specific teaching.

There are three factors which this research has exposed as being crucial to the development of innovative teaching and learning environments:

- The dyslexia-learning footprint;
- The affective/emotional learning environment;
- The process-model teaching environment.

The combination of these three elements will provide a caring, supportive system for the dyslexic learner which is not based upon left-brain organisational processes; is not patronising in its simplicity; but which develops systems for life-long learning through an understanding of the use of metacognition.

> " the ultimate aim of interactive teaching is for the child to develop metacognitive skills to be able to 'interact' with their own thinking."
>
> Merry, 1994 in Hunter-Carsch, 2001b

7.5.1 Regional Discourse Communities

If we are to encourage supportive discourse communities then pedagogy needs to reflect this at all levels. It is a whole-school issue which could draw together and unify teaching approaches. The lynch pin would be the move from a content/product approach to process teaching. This has implications for teacher training and continuing professional development programmes nationally. My experience of running post-graduate courses for teachers suggests that many good, experienced practitioners are themselves unaware of the writing process. They work at an intuitive and unconscious level of operation: mainly because they have never experienced any difficulties and therefore have never needed to analyse the cognitive processes involved in the production of coherent and cohesive text.

Recommendation 1:

The formation of Regional Writing Centres to develop metacognitive and decision-making processes in writing. Such centres would be situated in HEIs and would service both the academic writing community and local teachers. These centres would enable partnerships to evolve between schools, subject disciplines (in and between schools and University departments) and HEIs with the focus on the development of writing expertise and knowledge. They would reflect a vibrant writing discourse community while at the same time providing rich data for research and future development. A programme of writing master-classes would help to expose the cognitive processes involved, so that teachers and research writers could continue to develop writing expertise (Wray, 2002).

> "Of all the processes of literacy and language, writing is the most self-evidently metacognitive. The essence of the act of writing is the opportunity it affords us to put distance between ourselves and our thoughts. By expressing these thoughts in a visible way which we can subsequently rethink, revise and redraft, we are allowed, indeed forced, to reflect upon our own thinking."
>
> Wray, 2002, p.304

The benefits of such classes would be seen in enhanced teaching and learning environments and in more proficient outcomes for future research activity exercise (RAEs) systems. Teachers and researchers would be encouraged to unpick the thinking processes involved in writing (Wray *et al.*, 1997, Palincsar *et al.*, 1984).

7.5.2 Dyslexia Research Development

This study demonstrates that there are significant differences in the ways in which the dyslexic writer co-ordinates the process, and that there is a need to develop intervention programmes which have as the starting point the dyslexic way of thinking and working. As stated in chapter two, Frith's causal model for dyslexia was ground-breaking in that it drew together many strands of research about the aetiology of dyslexia into a single paradigm (Frith, 1995). The

parameters of research need to be broadened to include greater association between different research fields, so that disparities and unproductive arguments are dissolved in a new unification of research.

To respond to the paradox of the dyslexic writer, new intervention approaches must be devised which draw upon current research findings and help to re-shape theoretical models to respond, in particular, to the dyslexic learner. Evidence from new technological advances in brain imaging, published since I began this study, presents exciting possibilities for a synergy in dyslexia research. Functional magnetic resonance imaging (fMRI) demonstrates that cognitive psychology, neurology and education can be brought together to break new ground. The research of Eden et al. contributes to our understanding of the plasticity of the dyslexic brain (Eden *et al.*, 2002). The team monitored brain performance of dyslexic subjects during reading, before and after an intervention programme. They discovered that there were dysfunctions in the wiring of the dyslexic brain, but that another part of the brain was "plastic" and could be taught to compensate for the other region's weakness through a programme of intense reading training. fMRI is a non-invasive method of examining how the dyslexic brain operates. By monitoring blood supply to various parts of the brain when engaged in certain activities such as reading, it is possible to examine the parts of the brain which are activated by the dyslexic reader who is experiencing difficulties and compare these with non-dyslexic readers, either with or without difficulties. The latest longitudinal research also links brain monitoring to remedial or intervention programmes (Eckert *et al.*, 2003, Simos *et al.*, 2002). Although most of these studies have been conducted with young dyslexic children and the reading process, the technology is available to examine cognitive mapping during the writing process. Although still in its early stages, what the research is demonstrating is that, with remediation, parts of the brain can be activated to perform the functioning required for the specific activity, in this case the cognitive components needed for reading. In the past, despite the development of individual educational planning systems (IEPs) to meet the needs of the individual, there has always been a degree of the 'educated guess' in deciding upon the best teaching methods and approaches to suit specific needs.

With fMRI it is now possible to make this decision-making process more scientific and more accurate, so that dyslexic individuals are provided with the most effective teaching approaches. In this way the 'ad hoc' approach can be discarded in favour of proven intervention systems which re-structure the cognitive functioning during the writing process. Most practitioners would welcome research which showed conclusively that, by certain types of teaching and instruction, the dyslexic brain can be 're-wired' to compensate and provide greater efficiency.

Recommendation 2: Future Research Projects

Although research has been conducted separately into dyslexic cognitive profiles and the writing process, the two fields have not normally been combined in research projects. As a result of my findings of this small-scale investigation, funded research which brings together cognitive psychology, neurology and education in projects outlined above would also help shed light upon the theoretical writing process models of Flower and Hayes and Bereiter and Scardamalia in such a way that it would be possible to demonstrate whether such processing models apply to the dyslexic writer.

This research would entail longitudinal studies of novice and more experienced dyslexic writers. Intervention programmes, linked to individual cognitive cluster profiles, could be evaluated to inform pedagogy and research.

In Conclusion:

I began my quest with the paradoxes which the dyslexic writer displayed. The fundamental importance of the need to support dyslexic students effectively in HE is demonstrated through the voices of the students in this study, and the results they have already achieved without much focussed support and intervention. This study provides only a small sample, and it would be imprudent to generalise. One of the things the study does demonstrate is the need to redress the balance of the dearth of evidence in this field. We are at a cross-roads in HE

and need to develop new pedagogical frameworks which include 'broader parameters' (Herrington *et al.*, 2001 cited in Hunter-Carsch, 2001b), p. 112, which more adequately bring together research and teaching. Instead of teaching approaches which have been extrapolated from secondary education support models, the HE sector needs to give consideration to and value what the adult dyslexic student can bring to this context. After all, despite their difficulties, these students are articulate, and it is important to harness their experiences which would contribute to the development of new frameworks for support.

Appendix 1

Five Point Plan – Student Guide
Five Point Plan – Explanation of Design

Five Point Plan

Getting the Gist

1. Look at the title, headings, abstract and anything in **bold type or** *italics.*
   Ask yourself what global picture (general idea) they convey to you.

2. Look carefully at any diagrams, graphs or pictures.
   What information do they give? (Read the captions which accompany them to give you the gist)
   How does this information fit into what you gleaned from the box above?

3. Now look for a conclusion or summary section.
   It will give you an overview (global picture) of the information.

Getting the Focus

4. Now you have an idea of what is in this passage, think carefully about what you **want or need** to find out. Make some bullet points as a memory jogger.

5. Decide on your reading strategy.
   To locate the information quickly try scanning or skimming. If possible use a highlighter for important information so that you don't forget where it is.

Process Skills Provided by Five Point Plan

How the 5 Point Plan Works	Cognitive Profile Supports
Directs students to important text features for quick access to information. (Steps 1,2 and 3)	❖ Good for holistic/global thinkers ❖ Scaffolds reading skills by bringing skills used by expert readers to the surface, thus increasing functional reading skills. ❖ Supports weak cognitive capacity by chunking/staging the task. ❖ Supports memory storage by highlighting techniques and staging the process. ❖ Helps dyslexic students manage and organise the decision-making at macro and micro levels of text interaction.
Develops prediction skills. (Steps 1 and 2)	
Forces students to summarise information. (Steps 1,2,and 3)	
Gets students to think about reading styles which are most appropriate to the task. (Steps 4 and 5)	
Breaks the reading into strategic stages. (All steps)	
Makes the decision-making explicit at all stages. (All Steps)	

Appendix 2

Educational Psychologists' Reports
Psychometric Data

JACQUELINE PYE BSc, MSc, C.Psychol
Chartered Educational Psychologist
23 Saxholm Way, Southampton SO16 7GX. Phone/Fax (023) 8076 8711

PSYCHOLOGICAL ASSESSMENT REPORT

Name: STUDENT A
Date of Birth: 20.8.80
School/College:
Date of Assessment: 1.3.01

Literacy Assessment

History of literacy difficulties and of the help received
Mr [redacted] always had difficulty with spelling, and his speed of writing was slow. He was first assessed at age six, and found to have spelling difficulties. The next assessment, at age nine-plus, confirmed that he had specific learning difficulties. After that, he received some additional support at school until the age of eleven or twelve. A further assessment at age sixteen noted good reading but very delayed spelling and very slow writing speed. Additional time was recommended for examinations, and this was allowed at both GCSE and A-level.

Present situation
Mr [redacted] continues to be concerned about spelling - he sometimes chooses words which are less apt but easier to spell. He has difficulty with clarity of self expression in his written work, and essays take an exceptionally long time to complete. He prefers to work directly onto a computer where possible.

Tests given:

Wechsler Objective Reading Dimensions: (WORD) range 6 - 17+	basic reading age just reached 17+ years
Speed of reading aloud:	121 words per minute (task: read aloud a short story from Level 5 of the Neale Analysis) 4% errors; recall 63%
WORD Spelling Test: range 6 - 17+	spelling age just reached 17+ years
Speed of production of written work:	14-15 words per minute (task: write for 10 mins on a curriculum topic of own choice, a subject of recent study, with no time included for checking work) writing irregular but legible, not fully cursive; a number of deletions; 5-6% spelling errors and some omissions of final letters also; occasional errors with punctuation and sentence construction; content interesting, always relevant.

Interpretation of these test results
Reading aloud is fair for accuracy with words out of context, though some unexpected errors occurred with text. Speed of reading aloud is slow. Immediate recall of text, after reading it once, was faulty here. Spelling is now fair when tested in isolation, though again some unexpected errors occurred with text. Speed of production of written work is very slow; work is legible but not well presented.

Cognitive Assessment

On the Wechsler Intelligence Scale for Children, Third Edition (WISC-III), the scores were:

Verbal IQ	111
Performance IQ	94
Full Scale IQ	104

Mr [redacted] is therefore of average overall intelligence, with a positive bias towards language-based (Verbal) intelligence.

Summary and Opinion

Mr [redacted] is a student of average overall ability, with a history of specific learning difficulty being noted at each of his previous three psychological assessments. His spelling is now much improved, but there are ongoing difficulties with deriving meaning from text, speed of reading (mildly), and speed and quality of self-generated written work.

I would describe the specific difficulties currently evident as relating to aspects of processing language, involving both reading and written English. They mean that research is slow and laborious for the student, as is the structuring, writing and amendment of essays.

Recommendations

1 I would ask that the student should again be allowed up to 25 per cent additional time in formal written examinations.

2 Mr [redacted] should work directly onto a computer where possible, to make essay writing less laborious.

3 He should contact the specialist staff for advice if a particular assignment should cause difficulty. They may also be able to offer advice on improving his ability to derive meaning rapidly and efficiently from text.

4 I would just remind the student, in examinations, to take time to read the questions very carefully before both selecting and answering them. He should also proofread his work with care, checking especially for spelling errors, including homophones and for any inadvertent omission of final letters.

Jacqueline Pye

Jacqueline Pye
Chartered Educational Psychologist
Member of the Association of Educational Psychologists
Member of the British Psychological Society, and its Division of Educational and Child Psychology

2.3.01

Student A

Education and Development Advisory Service

Request for Special Examination Arrangements
Psychological Assessment Report

This form should be completed by an appropriately qualified psychologist.

Full Name of Candidate [redacted]

Date of Birth 20-08-1980 School/College [redacted]

Level of Literacy Attainments

Outline the candidate's history of literacy difficulties and any of the following; the results of recent tests of reading accuracy and speed, spelling, writing speed and legibility, names, dates and 'test ceilings' of standardised tests used. Interpret the results in terms of their implications for the GCSE examinations.

[redacted] was interviewed by Louise Holland, Educational Psychologist in July 1987 and at that time a reading age of 6 years 4 months was recorded when he was 6 years 11 months chronologically, and a continuous prose reading age of 7 years 9 months with comprehension 8 years 5 months was recorded. It was noted at that time that spelling was poor and that he had poor phonic decoding skills when reading, relying mainly on visual recognition techniques.

[redacted] was interviewed by Mr P Jefferey, Educational Psychologist in March 1990 when he was 9 years 7 months of age. On this occasion using the Schonell Word Reading Test he recorded a reading age of 8 years 6 months. Using the Neale Analysis of Reading Ability he recorded an accuracy score of 9 years 7 months and a comprehension score of 10 years 8 months. On the Vernon Graded Word Spelling test a spelling age of 7 years 8 months was recorded. Mr Jefferey recorded that he felt 'there is some evidence of specific learning difficulties and general language problems'.

In his earlier years in school [redacted] received extra teaching help to try to develop his literacy skills. Additionally, he repeated one year of school, and has been held back one year compared with his chronological peers ever since.

Assessment Date 13.1.97 Assessment Tool: Wechsler Objective Reading Dimensions
Basic Reading, reading age 17 years (percentile 47)
Spelling, spelling age 12 years 6 months to 13 years (percentile 14).

Writing was assessed using a standard task.*1 A writing speed of 11.9 words per minute was recorded with 3.1% of words misspelt.

[redacted] has clearly improved in his reading accuracy skills over the years so that now one would expect him to cope with the demands of GCSE Level courses and examination questions. Spelling has also improved but is still an area of relative weakness and one may note that in free writing a number of commonly occurring words were misspelt, for instance 'here' was spelt 'hear' etc. The score on the spelling test would suggest that when focusing entirely upon spelling Geoffrey will perform better in terms of his spelling than he does when he is focusing on content. It looks as if spelling, while improving is not a totally integrated part of [redacted]'s literacy skill package so that it becomes of secondary importance when he is writing for meaning. Within free writing capital letters were used inappropriately from time to time as was punctuation, particularly the use of an apostrophe to denote possession. Advice has been given to his present school regarding the need to work on various aspects of formal presentation of written work. I feel it is likely that if Geoffrey is asked to proof-read his written work he will be able to make improvements in terms of his spelling of what he has written. As his handwriting speed is below the bottom of the average range it is not likely that within normal examination time he will have sufficient time left to undertake proof-reading and consequently I feel it is appropriate, in the light of comments below to the effect that he experiences a specific learning difficulty, to consider the concession of extra time.

Student A

Education and Development Advisory Service

Cognitive Assessments

Provide evidence that the candidate can cope with the content of the examination. Give details of assessments, including names of assessment instruments used, the dates of assessments and the test conclusions or results. Any interpretation of cognitive assessments should relate directly to implications for the examinations.

Assessment Date 13.1.97
Assessment Tool: The Wechsler Intelligence Scale for Children - Third Edition UK.
Verbal IQ 111 (percentile 77), Performance IQ 94 (percentile 34), Full Scale IQ 104 (percentile 61)

British Ability Scales
Immediate Visual Recall age score 17 years 5 months plus (percentile 74, T=56)
Delayed Visual Recall age score 17 years 5 months plus (percentile 52, T=51).

Currently it is appropriate to view [redacted] as a person of 'average' ability with his Full Scale and Performance IQ scores lying in this range while Verbal IQ lies in the 'high average' range. When he was assessed at the age of 9 years 7 months he recorded a Full Scale IQ 101, Verbal IQ 103 and Performance IQ 100, none of these scores being statistically significantly different from the scores recorded at this more recent occasion.

It is appropriate for [redacted] to be studying GCSe courses and for those courses to be examined through formal GCSE examinations.

Other Relevant Information

Does the candidate have specific learning difficulties? YES/NO*
*delete as appropriate.

If yes, please give details and explain why you think the candidate has specific learning difficulties severe enough to warrant special examination arrangements.

Historically [redacted] has experienced difficulties in the development of literacy skills and additional help has been supplied to try to overcome those difficulties. To some extent the additional help has paid off in that progress has been made with all aspects of literacy skills, most noticeably with reading accuracy. [redacted]'s spelling test score, when compared with that predicted given his current Full Scale IQ of 104, is statistically weaker than that prediction at a level between the 0.05 and 0.01 levels of statistical significance. Using a discrepancy model one can see that spelling is still a real difficulty. Looking at the profile of results [redacted] recorded on the WISC III one may note very obvious signs of specific learning difficulties among the performance tests. The test Coding (score 6) and the test Block Design (score 6) recorded a result statistically highly significantly weaker than a test which focuses upon the use of logical reasoning (with the possible use of language as a means of thinking), Picture Arrangement (score 14). Very frequently people with low scores on Coding and Block Design show residual difficulties with spelling and/or handwriting as [redacted] does. Among the verbal tests all scores fell within the upper part of the average range including Digit Span which is normally a strong indicator of a need to look at the possibility of a specific learning difficulty. However, even though Digit Span scored 12, the bulk of this score came from good performance on the first part of the test which looks at rote memory, while the second part which looks at a different aspect of working memory produced a very weak score indicating that when [redacted] needs to manipulate information in working memory he has problems. Although the verbal test scores themselves do not indicate a specific learning difficulty there is a sign from the actual performance on Digit Span that such a problem probably exists. I feel it is appropriate to view Geoffrey as a student with a specific learning difficulty and to see that specific learning difficulty being reflected still in relative weaknesses with some aspects of literacy skills, to such a degree that this will adversely affect his performance in GCSE examinations. I feel it is appropriate to consider the concession of extra time to allow for proof-reading.

Student A

Education and Development Advisory Service

P3

Name of author of this report S G Phillips

Are you:

A Chartered Educational Psychologist? YES/NO*

A Full/Affiliate Member of the Association of Educational Psychologists? YES/NO*

Employed as an Educational Psychologist by an LEA? YES/NO*

Other (please specify) D.E.C.P. Member. A.C.P.P. Member.

*delete as appropriate.

Signed: S G Phillips B.Sc. M.Sc. A.F.B.Ps.S. Date: 28-1-97

*1 REFERENCE: Dutton, K P (1991). Writing under examination conditions; establishing a base line. In: SED/Regional Psychological Services; Professional Development Initiatives 1989-90. Scottish Education Department.

WFH/TH[request.2]

:ation and Development Advisory Service

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Chartered Educational Psychologist

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CONFIDENTIAL ASSESSMENT

Name:	STUDENT B
College:	
Course:	
Date of Birth:	**1 November 1980**
Date of assessment:	**1 March 2001**

Background information:

appears to have shown largely normal developmental progression although she feels that her eye-hand co-ordination such as throwing and catching have not been strong Rebecca reports that she has always struggled with literacy and recalls having extra lessons in spelling when at primary school. She currently finds that she needs to re-read material several times to fully understand it and tends to offer an unstructured approach to written expression. reports difficulty in listening to lectures and taking notes simultaneously.

has been assessed by the University using the Dyslexia Adult Screening Test (DAST). She achieved an At Risk Quotient of 2.4 (where >1 is regarded 'at risk'; maximum ARQ is 3).

Psychological information on cognitive development

I assessed using the *Wechsler Adult Intelligence Scale-Third Edition (UK)*. A graph of the scaled scores for her age group is enclosed. Broadly normal scaled scores are regarded as between 8 and 12, although the average range (in statistical terms) stretches from 7 to 13.

was found to be of at least average overall ability. She showed particular strength with simultaneous verbal reasoning (***Similarities***). Her auditory working memory (as represented by ***Digit Span***, ***Arithmetic*** and ***Letter-Number Sequencing***) was significantly weaker than her general skills of 'Verbal Comprehension'[1]. The differential is estimated to occur in around 3% of her age group and is therefore quite unusual. The speed with which she processed symbolic information (***Coding*** and ***Symbol Search***) was below average and significantly weaker than her 'Perceptual Organisation' index (a composite of ***Picture Completion***, ***Block Design*** and ***Matrix Reasoning***), with a

[1] A composite of ***Similarities***, ***Vocabulary*** and ***Information*** which gave a standard score of 110 (where the average range is from 85 to 115).

differential of this size estimated to occur in around 12% of her age group. Furthermore her sequential organisation (***Picture Arrangement***) was significantly weaker than her verbal strengths.

[redacted] memory for oral instructions and what she has read is likely to be weak. She will be prone to difficulty when trying to organise and plan though aural sequential means, and is be encouraged in utilising tangible visual structures such as spatially based plans in preparing and organising her written expression. Manipulation of sound/symbol relationships in word decoding and spelling will probably not be fluent.

I also assessed [redacted]s use of sounds in language using the 'Spoonerisms Test' from the Phonological Assessment Battery (PhAB). Items range in form from "*c*oal with a **g** gives **g**oal" up to full Spoonerisms of the form "*St*ormy **Bl**uster gives **Bl**ormy *St*uster". All items are spoken and no written work is involved. There is an increasing body of evidence to suggest that such phonological processing is a core deficit in dyslexia. This test is *not* designed to assess intelligence. Her accuracy of performance was around a 14½ year level and below that I would expect of her verbal strengths (broadly equivalent to a scaled score of 8) and slowly achieved. [redacted] appeared to use a visualisation strategy to help alleviate difficulties with auditory processing.

[redacted] displayed an uneven cognitive profile consistent with specific learning difficulties. IQ scores can be provided if required although because of the variation within component sub-tests, composite or 'averaged' scores such as IQ figures are likely to underestimate her potential for educational development and academic success.

Literacy development

Wide Range Achievement Test (**WRAT**-Revision 3)-Blue Form
This test has a ceiling of 50+ years and is appropriate for use with someone of [redacted]s age, which was **20 years 4 months** when we met.

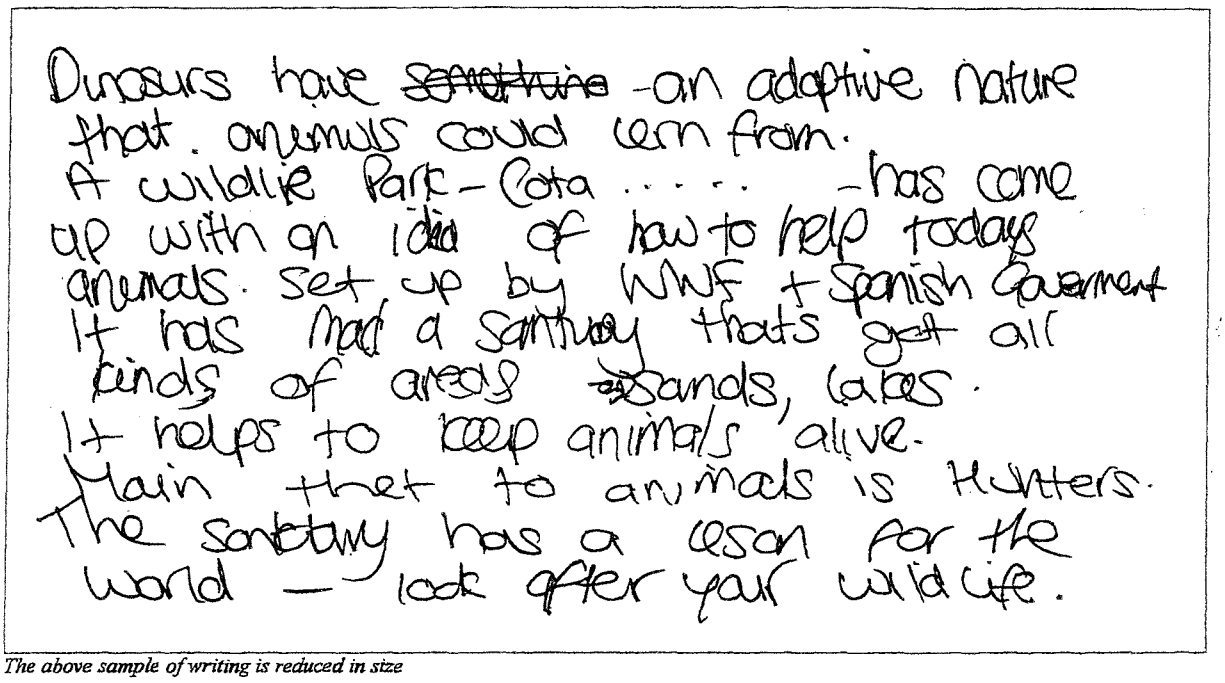
Reading:
[redacted]'s Standard Score was 94 (where the average range is from 85 to 115). This gives a scaled score equivalent of 9. She read relatively simple words on a sight recognition basis, but was very slow, though persistent, in decoding unfamiliar polysyllabic words such as "egregious", "municipal" and "seismograph".

Spelling:
[redacted]'s Standard Score was 82. Words in this spelling test are spoken individually, as part of a short sentence to give semantic clues, and again in isolation. Errors included "explan" for 'explain', "corect" for 'correct', "qantity" for 'quantity', "enthuisium" for 'enthusiasm' and "opurtunity" for 'opportunity'. This gives a scaled score of broadly 6.

Vernon Warden Reading Comprehension Test
This test has a ceiling of 22 years. It has a multiple-choice format in offering alternative words to complete written sentences within a generous 15 minute time limit. [redacted] achieved an age equivalent of 14 years. This gives an approximate quotient of 69 (roughly equivalent to a scaled score of 4) against her age.

STUDENT B

Speed of reading: read the extension comprehension passage from the ***Neale Analysis of Reading Ability*** aloud at a rate of 55 words per minute, which is very slow for her ability and for academic purposes, decoding polysyllabic words with little fluency. Furthermore she was able to answer only 3/8 questions on the passage when reading at this rate words, without additional access to the text. wrote a synopsis of what she had read at a rate of 18 words per minute, which would be slow for academic purposes. Her spelling error rate was 11%, which is high considering the content.


Dinosaurs have ~~something~~ an adaptive nature that animals could learn from.
A wildlife Park - Cota ..... has come up with an idea of how to help todays animals. set up by WWF + Spanish Gaverment It has had a sanctuary thats got all kinds of areas ~~sands~~, lakes.
It helps to keep animals alive.
Main thret to animals is Hunters.
The sanctuary has a lesson for the world — look after your wildlife.

The above sample of writing is reduced in size

's accuracy of *Basic Reading* is low average for her age, although very slowly achieved. *Reading Comprehension*, particularly where she has to maintain competing meanings in her mind, is firmly below average and much below the level expected of her ability. Her *Spelling*, when tested in isolation, is below the average range and below the level of her 'Verbal Comprehension'. Her written composition is uneasily achieved and she attempts to use words that she feels she can spell. has clear specific learning difficulties (dyslexia).

Implications for study

's ability and strengths suggest that she has the potential to follow her course of study. Her weaknesses in literacy, memory and processing speed are likely to make the reading and writing demands of her course more time consuming compared with similarly capable peers. would be slow in note taking and is likely to find written coursework difficult to complete in the required time. She would benefit from additional time in assessment situations in order to digest written information as well as plan and execute her considered response.

Implications for specific assistance

's performance is hampered by her specific learning difficulties. It is recommended that she receive ongoing individual specialised tuition from a dyslexia

trained tutor to help her develop her literacy and study skills in the following areas: spelling, reading for meaning, organisation of written language, note taking, researching literature as well as learning and revision techniques. [redacted] is to be encouraged in generating tangible visual plans to help organise her sequential expression. She will be further aided by talking herself through the logic of tasks, provided she has constructed visual referents to alleviate difficulties with auditory short-term recall.

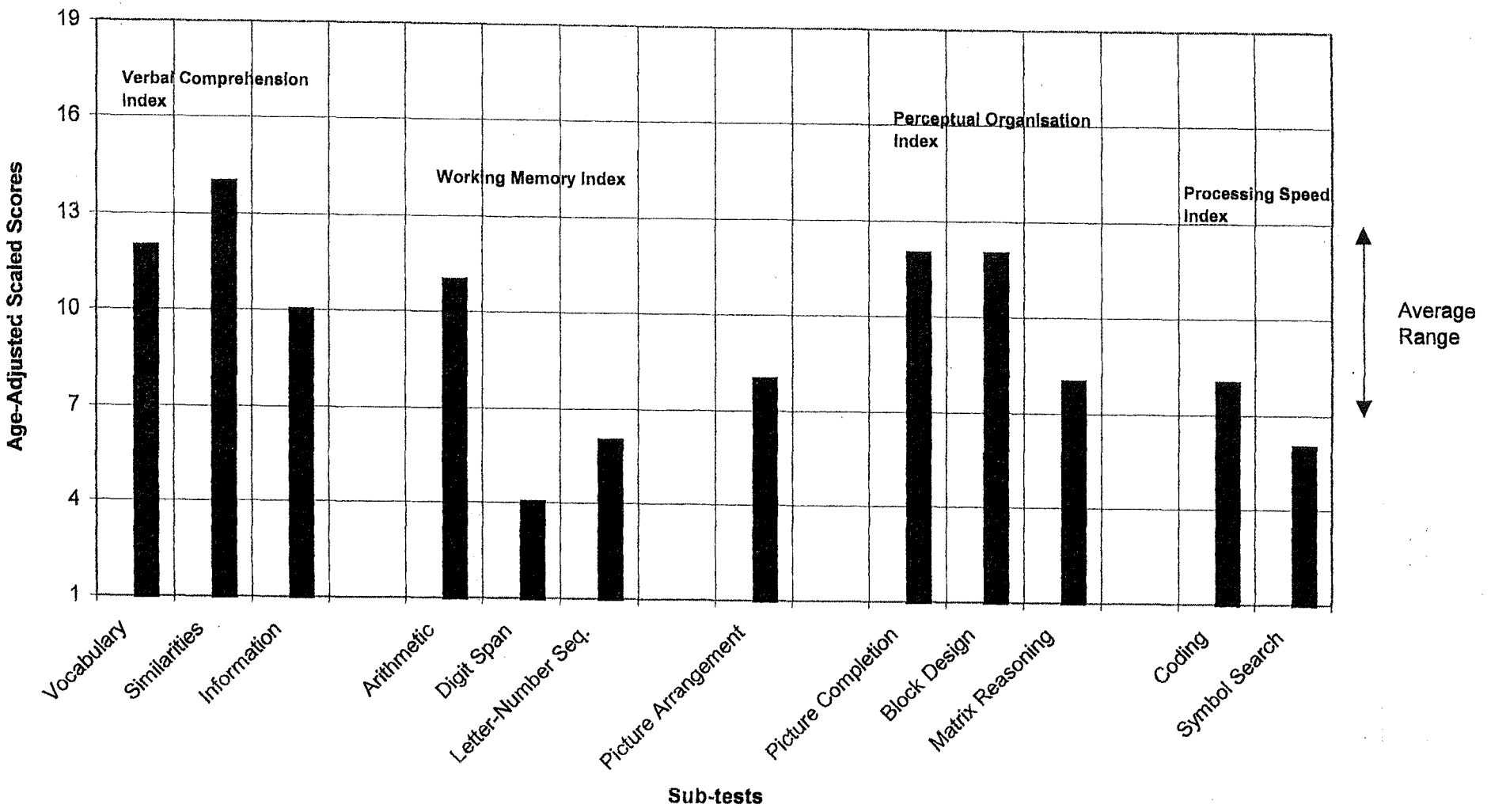
Implications for Information Technology

[redacted] would benefit from the use of a portable computer and software appropriate for her course. Scanning/copying facilities or purchase of essential texts would be beneficial so that she can highlight key points directly on the page to help with comprehension and revision. These facilities would enable [redacted] to organise her written language, check spelling, improve her speed of working and utilise her potential in a more effective manner. A hand held tape recorder may be useful for occasions when taking notes is impractical. The provision of written synopses of lectures/seminars would be beneficial.

I enjoyed working with [redacted] and found her to be a bright and alert student. I would be pleased to discuss her further, if this would be helpful.

P. Gareth Narbed
7 March 2001

Circulation:



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Student B

DAST Record Form for [redacted] STUDENT B

ering Scores

e the test scores in the 'Test Score' column of the score table below. Find the Score Key appropriate for the subject's age (and whethe ıt you want the student norms). Place it carefully on top of this sheet. The cutaway allows you to enter the 'At Risk Index' scores i ıird column of the score table. Look up the corresponding index (---, --, -, o, +) in the right hand columns of the Score Key (using th ıctions at the top of the Score Key) and enter it in the 'At Risk' column on this sheet. Make sure you use the appropriate Score Key.

	Test Score	'At Risk' Index	---	--	-	0	+
Rapid Naming	31				—		
One Minute Reading	43		— — —				
Postural Stability	—						
Phonemic Segmentn	12			— —			
Two Minute Spelling	17		— — —				
Backwards Span	3		— — —				
Nonsense Passage	65		— — —				
Nonverbal Reasoning	4			— —			
One Minute Writing	16		— — —				
Verbal Fluency (S)	13				—		
Semantic Fluency	12		— — —				

'eading rate: 114 wpm Writing rate: 14 wpm
18% error rate

:pretation

out the numbers of (---), (--) and (-) scores. If 4 or more are (---) or (--), or 7 or more are either (---), (--) or (-), the diagnosis is 'At For a quantitative measure score 3 for (---), 2 for (--), 1 for (-), 0 for the remainder and add up the scores. The 'At Risk Quotient' is he sum divided by 11. An ARQ of 1.0 or greater is strong evidence of being 'At Risk'. Also complete the Profile Chart. 'At Risk' areas ıs Segmentation suggest possible remediation work. Digit Span weakness suggests possible memory difficulties. Areas of strength may le the basis for a remedial strategy.

Name _____

ıpany etc _____

b/age at testing _____

ory of learning difficulties ☐ Sex (M/F)

of school leaving/FE/HE _____

ıpation _____

behaviour: concentration _____

anxiety _____

r info:

ber with --- 6 18 (A)

ber with -- 2 4 (B)

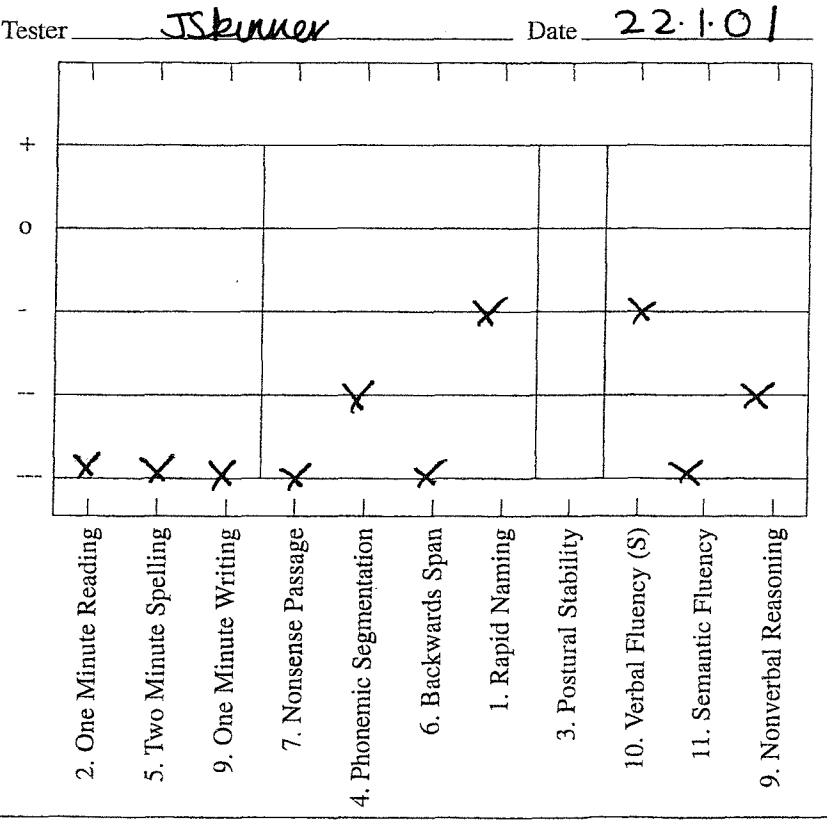
ber with - 2 2 (C)

tisk' score (3xA) + (2xB) + C 24 (D)

tisk' quotient (D)/11 2.4 (E)

ening diagnosis At Risk

Tester JSkinner Date 22·1·01



DAST Record Form for STUDENT3

1. Rapid Naming	2. One Minute Reading	3. Postural Stability	8. Nonverbal Reasoning
Time (secs) 31	Errors	Arms by side	1. 1 ✓
Errors	Passes	1	2. 4
	Last word read	2	3. 2 ✓
Time + 5 x errors	(A) Words attempted 44		4. 2 ✓
	(B) No. of errors & passes 1	Arms in front	5. 5 ✓
	(C) Score (A-B)	1	6. 6
	Time	2	7. 2 3
	(D) Bonus if <60 sec.		8. 2 3
Total 31	Total (C+D) 43	Total (max 24)	Score (max 8) 4

4. Phonemic Segmentation	5. Two Minute Spelling	6. Backwards Span	10. Verbal Fluency
1. Rainbow (rain) ✓	Hand used	2 4 ✓	S
2. Wigwam (wam) ✓	Handwriting quality	6 9 ✓	
3. Marmalade (malade)	(good/ave/poor)	8 3 5 ✓	
4. Dog (d) ✓		1 7 6	
5. boat (oat) ✓	Number completed	9 3 4	
6. stake (ache) ✓	Number of errors	3 8 1 7 ✓	
7. stake (take) took	Number correct 9	4 1 6 2 3	Total 13
8. stake (stay) steer	Add 8 if used only the	2 7 4 6 8	**11. Semantic Fluency**
9. snail (snay)	more complex spellings	8 7 1 5 6 9	Animals
10. flag (lag) ✓	17	4 1 5 2 7 8	
11. glow (go) ✓	Time if less than 2 mins (not	3 8 6 4 1 7 5	
12. igloo (igoo) ✓	used for bonus)	5 8 2 3 9 6 1	
13. Jarvis Cocker ✓		6 8 4 5 3 2 1 7	
14. Sean Connery ✓		4 1 5 3 8 7 6 2	
15. Shirley Bassey ✓			
Spoonerism Time (t)			
Penalty of 1 if t>50 s 20			
Score (max 15) 12	Total score (max 40) 17	Total score 3	Total 12

. Nonsense Passage Reading	9. One Minute Writing
n the olden days, a nobactious rennifer set out to craiberg an normous dollitroy that threatened his lammersill country. t was a really gragwally illadonter, and after killing it he was hingersomely tired. But the very next day he set out to Oligondervock to raffidanter his stettlenab. On his arrival, he met his bontuvildam at the hirsumling tation. They were rinsomely married and lived happily ever after in a rumbunctious cottage in the forest.	Words (max 50) 16 (A)
	Time
	Bonus (1 point for each 2s under 60) (B)
	Lesser of B and 10 (C)
	Errors
	Error Penalty (1 point for each 2 errors) (D)
(A) Real Words correct: (max = 59) 56	Writing Quality (good ave poor)
(B) 2 x Nonsense words correct (max = 30) 25	Penalty if writing poor (1-3) (E)
(C) Score = A + B 81	Penalty for poor punctuation (0-2)
Time 1.32	(F)
Time Bonus (1 per 2 s less than 60s, if score of 22+ on nonsense words (Max 10) or Time Penalty (1 per 2s more than 60s) Max 60 -16	A + B – C – D – E – F
(D) Score after penalty/bonus	
(E) Half Score (= half of C)	
Total score (greater of D and E) 65	**Total Score** 16

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FILE COPY

JACQUELINE PYE BSc, MSc, C.Psychol

Chartered Educational Psychologist

23 Saxholm Way, Southampton SO16 7GX. Phone/Fax (023) 8076 8711

PSYCHOLOGICAL ASSESSMENT REPORT

Student C

Name: [redacted]
Date of Birth: [redacted]
School/College: [redacted]
Date of Assessment: 16.2.01

Literacy Assessment

History of literacy difficulties and of the help received

Miss [redacted] believes she was late in learning to read, and there were always difficulties with handwriting and spelling. At primary school she was given some additional handwriting practice, and at secondary level some informal advice was given by subject teachers. There has been no previous assessment by an educational psychologist.

Present situation

Miss [redacted] was assessed by the University's Coordinator of Dyslexia Services, and was found to show evidence of a possible specific difficulty. Problems were occurring with spelling, note-taking, and structuring essays. Miss [redacted] agreed with these points, and added that in her written work she often chooses words which are less apt but easier to spell, as her spelling remains problematic. She prefers to handwrite essays initially, finding it easier to make large-scale amendments before typing the text, but once research is completed, the planning of essays takes a considerable amount of further time. She often does not recognise errors of grammar in her own work. Handwriting is much less legible under time pressure.

Tests given:

Wechsler Objective Reading Dimensions: (WORD) range 6 - 17+	basic reading age 17+ years
Speed of reading aloud:	170 words per minute (task: read aloud a short story from Level 5 of the Neale Analysis) total accuracy; recall 63%
WORD Spelling Test: range 6 - 17+	spelling age 17+ years
Speed of production of written work:	25 words per minute (task: write for 9 mins on a curriculum topic of own choice, a subject of very recent study, with no time included for checking work) writing irregular but legible, not fully cursive; occasional errors of spelling and sentence construction; content interesting and always relevant.

Interpretation of these test results

Reading aloud is at adult level for accuracy and speed. Immediate recall of text, after reading it once, was faulty here. Spelling is at adult level as tested here, but I believe it to be vulnerable in self-generated written text, especially under pressure. Speed of production of written work is fair; handwriting is legible if irregular. Content of written work appeared to be of good quality.

STUDENT C

Cognitive Assessment

On the Wechsler Abbreviated Scale of Intelligence (WASI 1999), T scores have an average range of 37-62, with 50 the actual mean. The results here were:

Verbal Tests	T Score	Performance Tests	T Score
Vocabulary	60	Block Design	59
Similarities	59	Matrix Reasoning	57

Verbal IQ	115	
Performance IQ	112	
Full Scale IQ	116	(95% confidence interval 112-120)

Miss [redacted] therefore appears to be of high average intelligence, with an overall result which places her in the upper fifteen per cent of people in her age group on this test. There were no weaknesses in the profile.

Other Information

Does the candidate have specific learning difficulties? YES/NO

Miss [redacted] sometimes gets weary when she has to study large amounts of print or spend long periods of time working on the computer. We checked the possible effect of coloured filters when reading text, and she found the green filter preferable to the plain white background.

Miss [redacted] told me that she has never been good with ball skills, and may have been a little clumsy as a child. Her work is often untidy, and she is unable to make notes sufficiently rapidly and legibly to be of maximum use later. Concentration can be unreliable, and she can be forgetful with important dates and other information. She has a tendency to lose things, for example she often leaves items of clothing behind her when visiting places.

Summary and Opinion

Miss [redacted] is a student of good intelligence, with a history of specific difficulties relating especially to written work, though she also finds it hard at times to absorb the content of text she has read, and reading speed is necessarily slow if she is to remember the text.

From observation, discussion and assessment processes, my opinion is that Miss [redacted] is mildly dyspraxic, and I have discussed this with her. She did score some 'positives' on my own checklist of factors which dyslexic adults have noted, but these tended also to be those which are consistent also with dyspraxia.

Recommendations

1 Miss [redacted] would benefit from practical advice from the Dyslexia Services staff should any specific working problems arise, for example with structuring a particular essay.

2 It would be appropriate for the student to be allowed additional time in formal written examinations, to allow her to read the questions repeatedly, and to plan, write and check her answers. My suggestion would be around 15 per cent additional time.

3 Miss [redacted] should explore the benefits of a coloured filter, with text in her research, with examination questions if helpful, and through the use of a tinted filter for the computer screen. Perry's in East Street, Southampton may be able to supply these.

Jacqueline Pye
Chartered Educational Psychologist
Member of the Association of Educational Psychologists
Member of the British Psychological Society, and its Division of Educational and Child Psychology
16.2.01

DAST Record Form for [redacted] STUDENT C

ering Scores

e the test scores in the 'Test Score' column of the score table below. Find the Score Key appropriate for the subject's age (and wheth ot you want the student norms). Place it carefully on top of this sheet. The cutaway allows you to enter the 'At Risk Index' scores hird column of the score table. Look up the corresponding index (---, --, -, o, +) in the right hand columns of the Score Key (using tl uctions at the top of the Score Key) and enter it in the 'At Risk' column on this sheet. Make sure you use the appropriate Score Key.

	Test Score	'At Risk' Index	---	--	-	0	+
Rapid Naming	19						+
One Minute Reading	98				—		
Postural Stability	—						
Phonemic Segment[n]	11		- - -				
Two Minute Spelling	29			- -			
Backwards Span	10					0	
Nonsense Passage	95					0	
Nonverbal Reasoning	7					0	
One Minute Writing	33				—		
Verbal Fluency (S)	15					0	
Semantic Fluency	24						+

Reading rate : 308 wpm Writing rate: 30 wpms

pretation

out the numbers of (---), (--) and (-) scores. If 4 or more are (---) or (--), or 7 or more are either (---), (--) or (-), the diagnosis is 'A For a quantitative measure score 3 for (---), 2 for (--), 1 for (-), 0 for the remainder and add up the scores. The 'At Risk Quotient' is ne sum divided by 11. An ARQ of 1.0 or greater is strong evidence of being 'At Risk'. Also complete the Profile Chart. 'At Risk' areas is Segmentation suggest possible remediation work. Digit Span weakness suggests possible memory difficulties. Areas of strength may le the basis for a remedial strategy.

Name _____

pany etc _____

o/age at testing _____

ory of learning difficulties ☐ Sex (M/F)

of school leaving/FE/HE _____

pation _____

behaviour: concentration _____

anxiety _____

info:

ber with --- 3 1 (3) (A)

ber with -- 2 1 (2) (B)

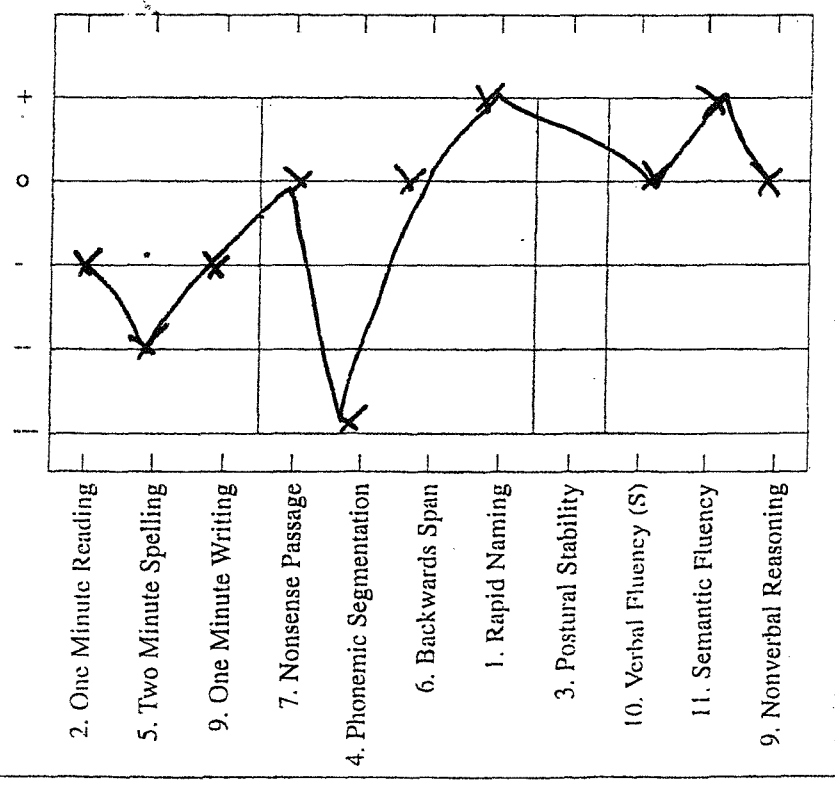
ber with - 2 (1) (C)

isk' score (3xA) + (2xB) + C _____ (D)

isk' quotient (D)/11 0·6 (E)

ning diagnosis _____

Tester [redacted] Date 25·1·01



DAST Record Form for _____ STUDENT C

1. Rapid Naming	2. One Minute Reading	3. Postural Stability	8. Nonverbal Reasoning
Time (secs) 19	Errors	Arms by side	1. 1
Errors	Passes	1	2. 4 ✓
	Last word read	2	3. 2 ✓
Time + 5 x errors	(A) Words attempted 99		4. 2 ✓
	(B) No. of errors & passes 1	Arms in front	5. 5 ✓
	(C) Score (A-B)	1	6. 6 ✓
	Time	2	7. 2 3 ✓
	(D) Bonus if <60 sec.		8. 2 3 ✓
otal 19	Total (C+D) 98	Total (max 24)	Score (max 8) 7

Phonemic Segmentation	5. Two Minute Spelling	6. Backwards Span	10. Verbal Fluency
. Rainbow (rain) ✓	Hand used	2 4 ✓	S
. Wigwam (wam) ✓	Handwriting quality	6 9 ✓	
. Marmalade (malade) ✓	(good/ave/poor)	8 3 5 ✓	
. Dog (d) ✓		1 7 6 ✓	
boat (oat) ✓	Number completed	6 9 3 4 ✓	
stake (ache) ✓	Number of errors	3 8 1 7 ✓	
stake (take) ✓	Number correct 21	4 1 6 2 3 ✓	Total 15
stake (stay)	Add 8 if used only the	2 7 4 6 8 ✓	11. Semantic Fluency
snail (snay) ✓	more complex spellings	8 7 1 5 6 9 ✓	Animals
flag (lag) ✓		4 1 5 2 7 8 ✓	
glow (go) ✓	Time if less than 2 mins (not	3 8 6 4 1 7 5 —	
igloo (igoo) ✓	used for bonus)	5 8 2 3 9 6 1	
Jarvis Cocker —		6 8 4 5 3 2 1 7	
Sean Connery —		4 1 5 3 8 7 6 2	
Shirley Bassey —			
merism Time (t) 16			
lty of 1 if t>50 s			
e (max 15) 11	Total score (max 40) 29	Total score 10	Total 24

nsense Passage Reading	9. One Minute Writing
olden days, a nobactious rennifer set out to craiberg an ious dollitroy that threatened his lammersill country. a really gragwally illadonter, and after killing it he was rsomely tired. e very next day he set out to Oligondervock to lanter his stettlenab. arrival, he met his bontuvildam at the hirsumling vere rinsomely married and lived happily ever after in a nctious cottage in the forest.	Words (max 50) _____ (A) Time _____ Bonus (1 point for each 2s under 60) _____ (B) Lesser of B and 10 _____ (C) Errors _____ Error Penalty (1 point for each 2 errors) _____ (D)
(A) Real Words correct: (max = 59) 58	Writing Quality (good ave poor)
(B) 2 x Nonsense words correct (max = 30) 27	Penalty if writing poor (1-3) _____ (E)
(C) Score = A + B 85	Penalty for poor punctuation (0-2)
Time 36	_____ (F)
onus (1 per 2 s less than 60s, if score of 22+ on nonsense words (Max 10) +10	A + B – C – D – E – F _____
ne Penalty (1 per 2s more than 60s) Max 60	
(D) Score after penalty/bonus	
(E) Half Score (= half of C)	
Total score (greater of D and E) 95	**Total Score** 33

THE NATIONAL HOSPITAL'S
COLLEGE OF SPEECH SCIENCES

Chandler House, 2 Wakefield Street, London WC1N 1PG
Telephone: 071 837 0113 Fax: 071 829 8720

CONFIDENTIAL

Name: **Student D**
ADDRESS:

DATE SEEN: 15.4.92
DATE OF BIRTH: 23.1.80
CHRONOLOGICAL AGE: 12 years 2 months

RELEVANT BACKGROUND

XXX was referred by his parents for educational assessment because they are concerned about his spelling and writing difficulties.
XXX suffers from asthma and because of this has missed a good deal of school. In his early school years, he was at school on average for one third of the time. When he was seven, his parents decided to educate him at home and his mother taught him for one year. During this year he gained in strength and also started to read. He entered his present school, a preparatory school, at 8 years of age. In recent years XXX has been more healthy but still suffers absence from school.

Now that XXX is stronger his educational needs have come more into focus. He is now an avid reader but he has difficulties with spelling and requires considerable assistance with writing skills. It may be relevant that there is a family history of specific learning difficulty.

BEHAVIOURAL OBSERVATIONS

XXX is a sociable young man who can converse confidently on a wide range of subjects. XXX is an excellent communicator and uses a very wide spoken vocabulary. However, he has marked speech difficulties. There are consistent error patterns in his speech, for example, he confuses f and th, th and s, w,r,l and y. The clarity of his speech differs according to the position of the various sounds within the word he is producing. The immaturities in XXX's speech are of concern considering his age. They are also directly affecting his spelling production.

XXX cooperated well during a lengthy test session. However, he was ill at ease and was particularly tense when presented with tasks which he found difficult. XXX is obviously aware of his difficulties and he tries to distract attention away from them.

XXX's concentration and attention control is good.

SPEECH AND LANGUAGE

As mentioned above, XXX has noticeable speech difficulties. These were also evident on a repetition test in which he was asked to repeat words and nonwords. Moreover, he had expressive language difficulties and some word-finding problems. Although he used language well, he was slow to bring words to mind and often made circumlocutions.

XXX had difficulty in recalling common sequences such as the months of the year and the alphabet. Similarly, he has difficulties with multiplication tables.

In short, although XXX's underlying language skills are good, he has difficulties with speech and with the retrieval of spoken information. These difficulties are often associated with dyslexic problems.

GENERAL INTELLECTUAL ABILITY

XXX was administered sub-tests from the Wechsler Intelligence Scale for Children – Revised. He gained a very superior score for Vocabulary, a test in which words have to be defined (scale score = 17). This test is normally the best predictor of educational potential. His scores for Similarities and Information were also in the high average range (Similarities = 16; Information = 13). In addition, XXX gained a superior score for Block Design (17), a spatial-constructional task, Picture Arrangement (16) and Picture Completion (15). Taken together these test results confirm that XXX is a boy of superior intelligence.

In contrast, XXX had difficulty with tests which require the use of verbal short term memory. He gained a below average score for Arithmetic (6), a test of mental calculation. Frequently, he was unable to remember the test questions which had been posed and even when he did so, he was prone to make slips of calculation. Thus, although his concept of number is good, he has arithmetic difficulties. Moreover, he had problems with Digit Span, a test of auditory verbal short term memory and Letter-Number Sequence on which he gained a scale score of 5 which is significantly below average. He performed at a similar level on Coding, a timed paper and pencil task involving copying.

In short, XXX is an intelligent young man who has specific difficulties with verbal short term memory as characteristic of children with specific learning difficulties.

READING ABILITY

XXX gained a Reading Age of 11 years 4 months on the B.A.S. Test of Word Reading. On this test, single words are presented out of context. XXX had a reasonable sight vocabulary but when words fell outside of this, he tended to confuse them with visually similar targets e.g. he read

"territory" as "terror"
"encounter" as "counter"
"dough" as "doubt"
"criterion" as "situation"
"emphasise" as "embrace"

XXX had enormous difficulty with the application of phonic decoding skills. On a Graded Nonword Reading Test, he performed at the 7 year level indication that the development of his sight vocabulary has proceeded without the use of phonological reading strategies. Although XXX can compensate for his basic reading problem by relying on his good vocabulary and language resources, he must do this at considerable cost. In short, XXX has specific reading difficulties.

SPELLING ABILITY

XXX gained a Spelling Age of 7 years 1 month on the Vernon Graded Word Spelling Test. This score is significantly below the level to be expected given his age, ability and reading skill.

When spelling to dictation, XXX writes extremely slowly, laboriously reflecting upon the sound sequence of the target word. In this situation, his spelling errors are primarily phonetic e.g. he spelled

"honey" as "huny"
"thumb" as "thum"
"always" as "allwase"
"honest" as "onest"

On a number of occasions, there were immaturities in XXX's spelling e.g. he spelled

"refreshment" as "refeshment"
"possess" as "pisest"
" earth" as "erfe"

XXX had little idea of orthographic conventions, for example, he did not know that q is always followed by u and therefore wrote "calculator" as "calqlater" and "require" as "ricwire". He also

showed a marked tendency to add a silent e at the end of words e.g. he spelled "pencil" as "pencile", "cold" as "colde" and so forth.

In free writing XXX spelling errors were rather more serious because he was not concentrating upon the sound sequence. For example, he spelled "violently" as "vilingle", "cautiously" as "corsisley", "whiskers" as "wicers". He also had basic difficulty, for example with word segmentation e.g. he spelled "at all" as "atall".

In short, XXX has serious spelling difficulties. These appeared to be attributable to a difficulty with the sound sequence of spoken words prior to its transcription into letters.

FREE WRITING

The content of XXX's written work (given time) is excellent. He uses a large vocabulary and a wide range of sentence structures. His use of punctuation appears to be adequate. His handwriting is also clear and well-formed. However, XXX's spelling errors seriously detract from the content of his work. He requires allowance for his specific spelling difficulties when his written work is assessed.

AUDITORY SKILLS

A brief examination was made of the auditory/phonological skills which underlie reading and spelling development. XXX found it difficult to detect the odd one out from a series of auditorily spoken words (e.g. run, rub, fun, gun) because of the memory demands of this task. When explicitly asked to generate words beginning with certain sounds, he was very slow and particularly slow if he had to think of words ending in a given sound. XXX was unable to segment words explicitly at the level of phoneme; his ability to blend sounds into words was reasonable for word items but he made many errors when asked to blend together sounds to make nonwords.

In short, XXX has difficulties with phonological processing. His difficulties with segmentation underlie his written language problems.

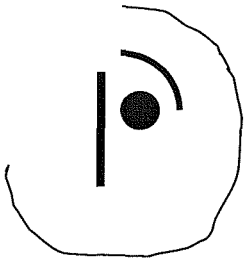
CONCLUSIONS

It is our considered opinion that XXX is a boy of above average intelligence who has serious specific learning difficulties (dyslexia). XXX's difficulties appear to be attributable to an underlying weakness in the processing of sounds. They are not attributable to absence from school although clearly, XXX's problems may have been exacerbated because of his long illness.

In our opinion, XXX requires speech therapy. Moreover, he is in urgent need of teaching attuned to his individual needs. He requires instruction in reading and spelling using a systematic structured multisensory approach. He also requires in-class support to enable him to access the curriculum fully.

Margaret J. Snowling, PhD

Uta Frith, PhD
MRC Cognitive Development Unit
London



Dyslexia Day Centre (Guernsey) Ltd
King George Vth Playing Fields,
Rue Cohu Castel,
Guernsey.
Channel Islands.
Tel (01481) 52655

To WHOM IT MAY CONCERN

Name: Student D Date of Birth: 23rd January 1980

Address: School:

XX had a psychological/educational assessment at age 12 years 2 months at the National Hospital's College of Speech Science London. He was found to be of above average intelligence, with difficulties in verbal short term memory, word retrieval problems, and difficulties in auditory/phonological processing. He was seen to be a pupil with serious specific learning difficulties.

He has a period of specialised tuition in London in 1992-93. The family then moved to West Africa, where no specialised help was available. XX attended for tuition at Dyslexia Day Centre, Guernsey during 1996.

XX was seen for re-examination in November 1996. His reading skills at that time were average but spelling was below average. Copy writing was relatively slow. XX's above average intellectual ability was confirmed on Verbal Comprehension subtests of WISC.

It was recommended that XX be given extra time in examinations.

I re-examined him on 2nd December 1998 when he gained the following scores on literacy tests.

Wide Range Achievement Test:	Word Reading	Standard Score 112
Kirklees Reading Assessment Schedule:	after 10 mins	Quotient 119
	Completed in 12.5 mins	Quotient 121
Wide Range Achievement Test:	Word Spelling	Standard Score 94
Writing on topic	Spelling error rate 6%	
Writing speed:	On prepared topic	17 wpm
	On sentence completion test	17 wpm

These results indicate his continuing inefficiencies in written english. He should be considered as a pupil with specific learning difficulty.

He should be considered for extra time concession and if possible for a spelling allowance in national examinations where his literacy weaknesses handicap his ability to demonstrate his learning.

Katherine Adam
M.A. Hons in Psychol
Diploma in Education Psychology
Chartered Psychologist

P. Gareth Narbed
B.Sc.(Hons.), P.G.C.E., M.Sc.(Ed.Psych.), A.F.B.Ps.S., C.Psychol.

Chartered Educational Psychologist

Tel: 023-8036-9828 Fax: 0870-122-3647 *e-mail: Narbed@bigfoot.com*

CONFIDENTIAL ASSESSMENT

Name: [redacted] Student E
College: [redacted]
Course: [redacted] **(Year 3 – Oct. 2001)**
Date of Birth: **28 July 1977**
Date of assessment: **13 July 2001**

Background information:

[redacted] appears to have shown largely normal developmental progression although he has a history of ear infections and grommets were inserted when he was younger. He feels that he has always struggled with literacy and recalls having received additional support at primary school and the early stages of secondary education. [redacted] is in receipt of a Whitworth engineering scholarship following a City and Guilds apprenticeship and ONC/B.Tech. qualifications. He persevered in gaining a GCSE pass in English, which he achieved through evening classes. [redacted] believes that his examination grades have not previously reflected his understanding. He reports that he needs to read material a number of times in order to gain full comprehension and finds he does not easily give structure to written work, which tends to represent his knowledge only after much effort and time.

[redacted] has been assessed by the [redacted] at [redacted] University using the Dyslexia Adult Screening Test (DAST). He achieved an At Risk Quotient of 1.4 (where >1 is regarded 'at risk'; maximum ARQ is 3), showing greatest difficulty in decoding 'nonsense' words. He appears to limit his written vocabulary to words he feels he can spell. I understand that [redacted] father has had difficulty with spelling.

Psychological information on cognitive development

[redacted] was assessed using the *Wechsler Adult Intelligence Scale-Third Edition (UK)*. A graph of the scaled scores for his age group is enclosed. Broadly normal scaled scores are regarded as between 8 and 12, although the average range (in statistical terms) stretches from 7 to 13.

[redacted] was found to be of at least above average overall ability. His processing speed for symbolic information (***Coding*** and ***Symbol Search***) was significantly weaker than his very good 'Perceptual Organisation' index (as represented by ***Picture Completion***, ***Block***

STUDENT E

Design and ***Matrix Reasoning***)[1]. The size of this discrepancy is estimated as occurring in less than 0.6% of his age group and is therefore very unusual. Slow processing speed can cause even functional auditory memory to become 'overloaded' as information has to be held onto longer in order for it to be processed effectively. It is often associated with specific learning difficulties (dyslexia) as it can affect the fluency of decoding, encoding and transcription. Furthermore [redacted]'s auditory working memory (***Arithmetic, Digit Span*** and ***Letter Number Sequencing***) was overall significantly weaker than both his 'Verbal Comprehension' (as represented by ***Vocabulary***, ***Similarities*** and ***Information***) and 'Perceptual Organisation'. The size of the latter discrepancy is estimated as occurring in less than 0.2% of his age group. [redacted] therefore has a number of clear strengths but displays marked specific cognitive weaknesses with symbolic processing and short-term auditory memory.

[redacted] should continue to use tangible visual structures such as spatially based plans in preparing and organising his written expression. He will also be aided by talking himself through the logic of tasks, provided he has constructed visual referents to alleviate relative difficulties with auditory short-term recall.

I also assessed [redacted]s use of sounds in language using the 'Spoonerisms Test' from the Phonological Assessment Battery (PhAB). Items range in form from "*c*oal with a **g** gives goal" up to full Spoonerisms of the form "*St*ormy **Bl**uster gives **Bl**ormy *St*uster". All items are spoken and no written work is involved. There is an increasing body of evidence to suggest that such phonological processing is a core deficit in dyslexia. His accuracy of performance was below that which I would have expected of his ability and roughly equivalent to a scaled score of 7.

[redacted] displayed an uneven cognitive profile consistent with specific learning difficulties. IQ scores can be provided, if required, although because of the variation within component sub-tests, composite or 'averaged' scores such as overall IQ figures are likely to underestimate his potential for educational development and academic success.

Literacy development

Wide Range Achievement Test (**WRAT**-Revision 3)-Blue Form
This test has a ceiling of 50+ years. [redacted] was aged **23 years 11 months** when we met.

Reading:
[redacted]s Standard Score was 84. This gives a scaled score equivalent of broadly 7. He read a number of words on a sight recognition basis, but had difficulty in decoding unfamiliar words such as 'contagious', 'unanimous' (read as "anonymous") and 'discretionary'. He read 'split' as "spilt" and 'benign' as "begin".

Spelling:
Words in this spelling test are spoken individually, as part of a short sentence to give semantic clues, and again in isolation. Errors included "adice" for 'advice', "rearch" for 'reach', "run" for 'ruin', "conshence" for 'conscience' and "ancissiaty" for 'anxiety'. [redacted] achieved a Standard Score was 82. This gives a scaled score of broadly 6.

[1] Standard Score of 150 (where the average range is from 85 to 115). This is within the top 1% of his age group.

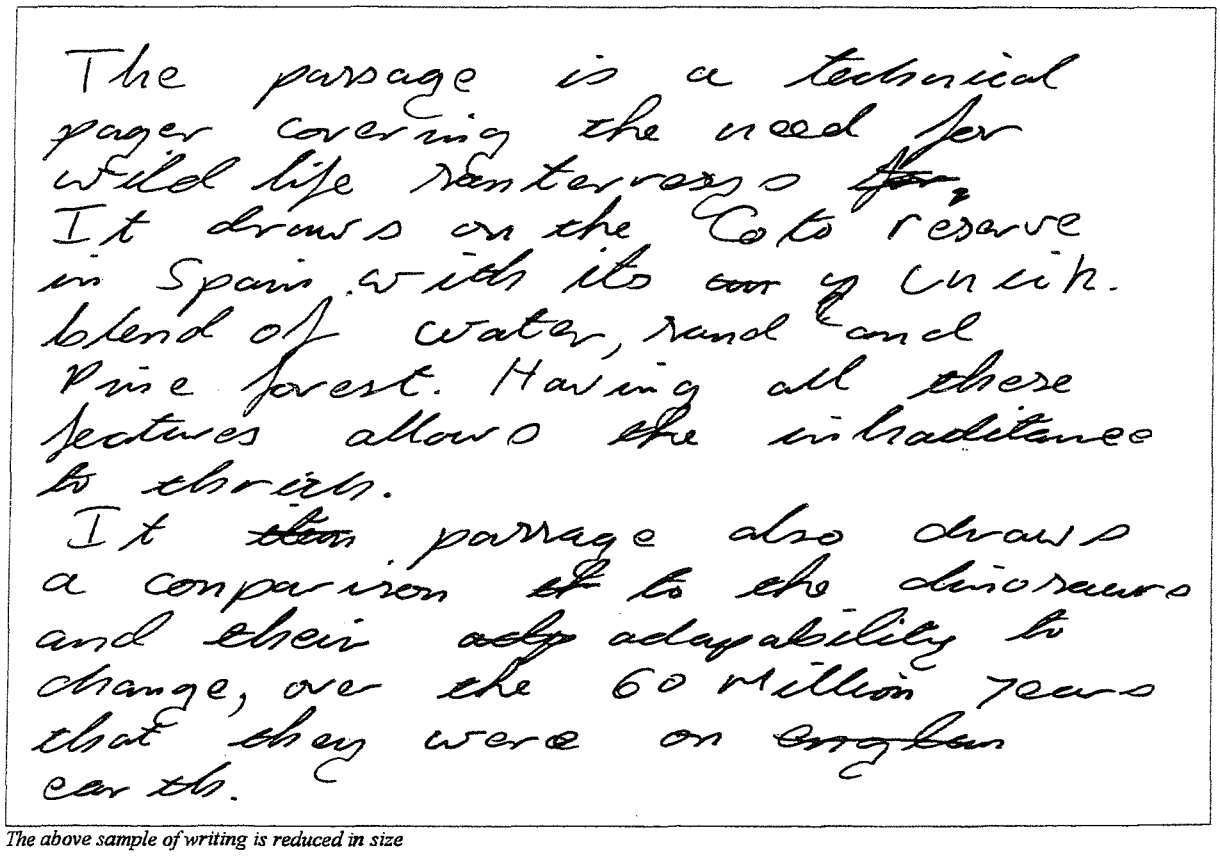
STUDENT E

Vernon Warden Reading Comprehension Test

This test has a ceiling of 22 years. It has a multiple-choice format in offering alternative words to complete written sentences. [redacted] achieved an age equivalent of 15 years 8 months. This gives a quotient of 71 (roughly equivalent to a scaled score of 4) against the test ceiling. [redacted] appeared to have difficulty in maintaining competing meanings in his memory and needed to re-read options - particularly where he would also have needed to decode some unfamiliar polysyllabic words.

Speed of reading:

[redacted] read the extension comprehension passage from the ***Neale Analysis of Reading Ability*** aloud at a rate of 62 words per minute, which is very slow for academic purposes. However he used context well to correct errors and he was able to answer most oral questions correctly. After further re-reading, [redacted] composed and wrote a synopsis of what he had read at a rate of 13 words per minute, which is slow for academic purposes and much below the level I would have expected on the basis of his ability. His spelling error rate was around 11%.



The passage is a technical pager covering the need for wild life Reserves. It draws on the Coto reserve in Spain with its mix of water, sand and Pine forest. Having all these features allows the inhabitance to thrive.

It passage also draws a comparison to the dinosaurs and their adaptability to change, over the 60 million years that they were on Earth.

The above sample of writing is reduced in size

[redacted] basic reading for individual words and spelling are below the average range and much below the level of his ability. He shows a particular underachievement with reading comprehension and expresses himself through writing with little fluency. He displays specific learning difficulties (dyslexia).

STUDENT E

Implications for study

[redacted]'s ability and strengths indicate that he has the potential to follow his course of study. His relative weaknesses in literacy, memory and speed of language processing are likely to make the reading and writing demands of academic study more time consuming compared with similarly capable peers. [redacted] is likely to find coursework difficult to complete in the required time. He would benefit from additional time in assessment situations in order to digest written information as well as plan and execute his considered response. I recommend that [redacted] continue to receive extra time in examinations. Due tolerance will be needed for his naïve spelling.

Implications for specific assistance

[redacted]'s performance is hampered by his specific learning difficulties. It is recommended that he review his strategies with a dyslexia trained tutor to help him develop his literacy and study skills in the following areas: reading for meaning, organisation of written language, note taking, spelling, researching literature as well as learning and revision techniques. He would benefit from support in reconfiguring tasks into a format where he can use his strengths to full effect, and monitoring of the techniques he uses.

Implications for Information Technology

[redacted] would benefit from the use of a portable computer and software appropriate for his course. Scanning/copying facilities or purchase of essential texts would be useful so that he can highlight key points directly on the page to help with comprehension and revision. These facilities would enable [redacted] to organise his written language, check spelling, improve his speed of working and utilise his potential in a more effective manner. The provision of written synopses of lectures would be beneficial. A hand held tape recorder might be considered for occasions when taking notes is impractical.

I enjoyed meeting and working with [redacted]. I would be pleased to discuss him further, if this would be helpful.

P. Gareth Narbed
19 July 2001

Circulation:

DAST Record Form for [redacted] STUDENT F

ing Scores

he test scores in the 'Test Score' column of the score table below. Find the Score Key appropriate for the subject's age (and whether you want the student norms). Place it carefully on top of this sheet. The cutaway allows you to enter the 'At Risk Index' scores in d column of the score table. Look up the corresponding index (---, --, -, o, +) in the right hand columns of the Score Key (using the tions at the top of the Score Key) and enter it in the 'At Risk' column on this sheet. Make sure you use the appropriate Score Key.

	Test Score	'At Risk' Index	---	--	-	0	+
apid Naming	69	— — —					
ne Minute Reading	69	— — —					
ostural Stability	/	/					
nonemic Segment[n]	13	0					
wo Minute Spelling	27	—					
ackwards Span	4	—					
onsense Passage	71	— —					
onverbal Reasoning	3	—					
ne Minute Writing	28	0					
erbal Fluency (S)	14	—					
emantic Fluency	24	0					

pretation

ut the numbers of (---), (--) and (-) scores. If 4 or more are (---) or (--), or 7 or more are either (---), (--) or (-), the diagnosis is 'At For a quantitative measure score 3 for (---), 2 for (--), 1 for (-), 0 for the remainder and add up the scores. The 'At Risk Quotient' is sum divided by 11. An ARQ of 1.0 or greater is strong evidence of being 'At Risk'. Also complete the Profile Chart. 'At Risk' areas Segmentation suggest possible remediation work. Digit Span weakness suggests possible memory difficulties. Areas of strength may the basis for a remedial strategy.

lame [redacted]

any etc

age at testing 49

y of learning difficulties F Sex (M/F)

f school leaving/FE/HE

ation

ehaviour: concentration Good

anxiety High

info:

er with --- 2 (A)

er with -- 1 (B)

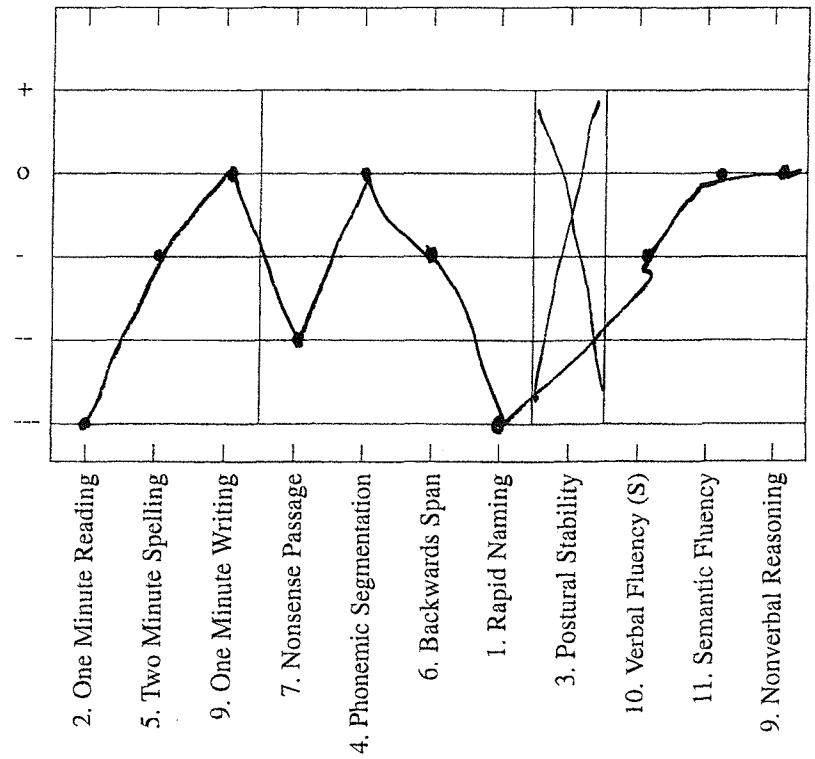
er with - 3 (C)

sk' score (3xA) + (2xB) + C 6+2+3 (D)

sk' quotient (D)/11 11/11 (E)

ing diagnosis 1

Tester Date



DAST Record Form for ____ STUDENT F

. Rapid Naming	2. One Minute Reading 76	3. Postural Stability	8. Nonverbal Reasoning
ime (secs) (2. 49) 169	Errors 7	Arms by side	1. 1 ____ ✓
rrors 0	Passes 0	1	2. 4 ____ x
	Last word read agency	2	3. 2 ____ x
ime + 5 x errors 169	(A) Words attempted 69		4. 2 ____ ✓
	(B) No. of errors & passes 0	Arms in front	5. 5 ____ x
	(C) Score (A-B) 69	1	6. 6 ____ x
	Time	2	7. 2 3 ____ x
	(D) Bonus if <60 sec. 0		8. 2 3 ____ ✓
otal 169	Total (C+D) 69	Total (max 24)	Score (max 8) 3

Phonemic Segmentation	5. Two Minute Spelling	6. Backwards Span	10. Verbal Fluency
. Rainbow (rain) ✓	Hand used Right	2 4 ✓	S
. Wigwam (wam) ✓	Handwriting quality	6 9 ✓	𝍸 𝍸 IIII
. Marmalade (malade) ✓	(good/ave/poor)	8 3 5 ✓	
. Dog (d) ✓		1 7 6 x	
. boat (oat) ✓	Number completed 27	6 9 3 4 ✓	
. stake (ache) ✓	Number of errors 8	3 8 1 7 x	
. stake (take) ✓	Number correct ~~8~~ 19	4 1 6 2 3 x	Total 14
. stake (stay) ✓	Add 8 if used only the	2 7 4 6 8 x	**11. Semantic Fluency**
. snail (snay) ✓	more complex spellings	8 7 1 5 6 9	Animals
. flag (lag) x	27	4 1 5 2 7 8	𝍸 𝍸 𝍸
. glow (go) ✓	Time if less than 2 mins (not	3 8 6 4 1 7 5	𝍸 IIII
. igloo (igoo) x	used for bonus)	5 8 2 3 9 6 1	
. Jarvis Cocker 185		6 8 4 5 3 2 1 7	
. Sean Connery 45		4 1 5 3 8 7 6 2	
. Shirley Bassey 25			
oonerism Time (t)			
nalty of 1 if t>50 s			
ore (max 15) 13	Total score (max 40) 27	Total score 4	Total 24

Nonsense Passage Reading	
the olden days, a nobactious rennifer set out to craiberg an ormous dollitroy that threatened his lammersill country. was a really gragwally illadonter, and after killing it he was ngersomely tired. t the very next day he set out to Oligondervock to ffidanter his stettlenab. his arrival, he met his bontuvildam at the hirsumling tion. ey were rinsomely married and lived happily ever after in a mbunetious cottage in the forest.	Sounds out of place. Im 09s
(A) Real Words correct: (max = 59)	59
(B) 2 x Nonsense words correct (max = 30)	16
(C) Score = A + B	75
Time	69s
ne Bonus (1 per 2 s less than 60s, if score of 22+ on nonsense words (Max 10)	
r Time Penalty (1 per 2s more than 60s) Max 60	-4
(D) Score after penalty/bonus	71
(E) Half Score (= half of C)	37½
Total score (greater of D and E)	71

9. One Minute Writing	
Words (max 50)	31 (A)
Time	60 s
Bonus (1 point for each 2s under 60)	0 (B)
Lesser of B and 10	0 (C)
Errors	0
Error Penalty (1 point for each 2 errors)	0 (D)
Writing Quality (good ave poor)	
Penalty if writing poor (1-3)	3 (E)
Penalty for poor punctuation (0-2)	0 (F)
A + B – C – D – E – F	
Total Score	28

299

Charles A. Tarett
Consultancy
A PSYCHOLOGY AND
EDUCATION SERVICE

13 DINGLE AVENUE
SHAW
OLDHAM OL2 8DD
Telephone: 01706 847918

Mr.
Date Seen: 21.11.91
CHRONOLOGICAL AGE: 40 years 2 months

GENERAL BACKGROUND

Mr. has been involved in his teaching of people with specific learning difficulties and he has used teaching strategies which are designed for people with these difficulties to develop his own skills. At the time of this assessment he indicated that there has been a considerable improvement in his literacy skills since he has been using self-help strategies. During his school career he had difficulties with reading and writing and he felt frustrated that his written work was not an accurate reflection of his understanding of the course work. In his adult life he has successfully completed a Cert. Ed. course and a B.A. course. He is continuing with his studies in the area of specific learning difficulties.

TEST RESULTS

WECHSLER ADULT INTELLIGENCE SCALE WAIS-R

In order to obtain an ability profile subtests from the Verbal Scale and the Performance Scale have been administered.
The average scled score for each subtest is 10; individual scores can range from 1 to 19. The average IQ score is 100, plus or minus 15. The average range, therefore, is 85 to 115.

FULL SCALE IQ 118

VERBAL SCALE IQ 120		
Information	General knowledge	15
Digit Spa	Auditory memory skills	7
Vocabulary	Definitions of common words	17
Arithmetic	Mental arithmetic	7
Comprehension	Social judgement questions	15
Similarities	Verbal reasoning	16

PERFORMANCE SCALE IQ 111		
Picture Completion	Identifying picture omissions	14
Picture Arrangement	Visual sequencing skills	11
Block Design	Visual perceptual skills	10
Object Assembly	Constructive visual thinking	13
Digit Symbol	Visual short-term memory	6

These scores indicate that Mr. has high average visual skills and superior verbal skills. His profile on the WAIS-R indicates that there are areas of high ability and areas of weakness. He has high ability on most of the items on the Verbal Scale. There are weaknesses, however, in his performance on the Digit Span and Arithmetic subtests which rely on short-term auditory memory. On the Performance Scale there is a weakness in his performance on Digit Symbol subtest where fine motor control and visual short-term memory are used in a coding exercise. It is important to note that when the Arithmetic, Digit Span and Digit Symbol subtests are removed from the calculations the following IQs are yielded:- **Verbal IQ 137, Performance IQ 119 and Full IQ 133**. As people with dyslexia frequently have difficulties with these subtests, the revised IQs may be more accurate indicators of his general abilities. The revised Full Scale IQ and **Verbal Scale IQ** are in the **very superior range**. The revised **Performance IQ** is at the **upper limit of the high average range**.

BASIC LITERACY SKILLS

READING

The British Ability Scales Word Reading Test was used in the assessment. The test involves the reading aloud of single words, and phonic knowledge has to be used to decode unfamiliar words. Mr. achieved a reading age of 14 years 5 months.

On the Vernon-Warden silent reading test Mr. achieved a reading age of 18 years 0 months. He made seven errors on this test. This score is at the 87th percentile for adults and at the 10th percentile for university students. (The 87th percentile is above average for that group and the 10th percentile is below average.)

SPELLING

On the Vernon Spelling Test, Mr. achieved a spelling score which calculates to a spelling quotient of 105. This is within the average range but below Mr. 's Verbal Scale IQ.

WRITING SKILLS

Mr. produced a passage of writing at a rate of 20 words per minute, which is reasonably fast. His spelling was accurate, punctuation was used and his ideas were expressed lucidly. However, Mr. inidcated that on some occasions he has difficulty in writing down his ideas quickly.

In general his literacy skills are within the average range, however, considering the high level of his Verbal Scale IQ it would be reasonable to expect that his literacy skills would be higher. Also it is important to be consider the impact on his literacy skills of the extra work he has done to raise their levels, It is likely that his skills would be lower if he had not spent time devising strategies to improve them.

LATERALITY TESTS

Mr. writes with his left hand. On the eye laterality tests he consistently used his left eye. Left hand, left eye dominance appears to be established.

BANGOR DYSLEXIA TEST

On the Bangor Dyslexia Test a positive indicates that the person failed a number of items on the subtest. A negative score indicates that there were no, or very few, failures on this subtest. Therefore, the higher the score out of ten the more difficulties the person experienced. The results from the Bangor Dyslexia Test have to be considered together with the person's age, IQ and literacy skill levels before it can be seen as confirming that the subject has, or does not have, specific learning difficulties.

These were positive indications of dyslexia on the following subtests:-

Tables, Digit forwards, Digits reversed (these involve the auditory sequencing skills) and Familial incidence. B-d confusion was borderline. This calculates to a score of 4.5 positive indicators of dyslexia.
Mr. 's score is high enough to suggest that he does have difficulties in common with people who have specific learning difficulties (Dyslexia).

CONCLUSION

Mr. is a man of high verbal and visuo-spatial skills. On the basis of this assessment one would expect his literacy skills to be at a high level. However, his reading, spelling and writing skills are within the average range. The WAIS-R assessment indicates that there are some difficulties with Mr. 's short-term and working auditory memory and with his short-term visual memory/fine motor control. He also had difficulties with a number of the sequencing subtests on the Bangor Dyslexia Test. Taking all of the findings of this assessment into account it is evident that his functioning shows a recognisable dyslexic pattern. Mr. can be described as dyslexic.

RECOMMENDATIONS

Initially, Mr. will need to decide upon the skills he wants to improve in order to meet his professional and social objectives. If he decides to improve the levels of his literacy skills he could continue to use self-help strategies or he could seek the advice of a teacher who has experience in teaching adults with specific learning difficulties, whose skills are already within the average range.

He needs to ensure that he has opportunities to practise his reading skills by selecting books and magazines which interest him and which are difficult enough to encourage him to check the meaning and pronunciation of some unfamiliar words.

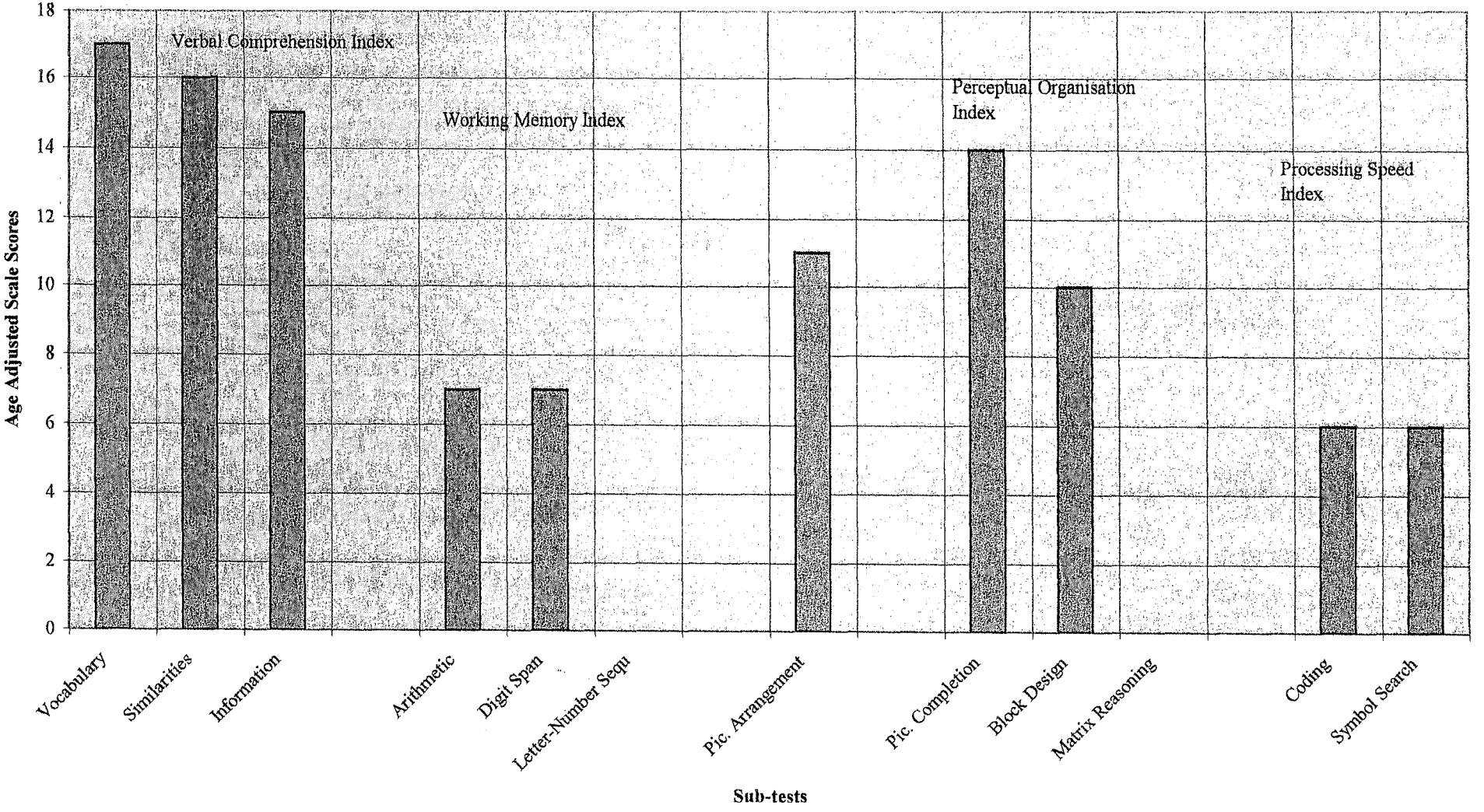
He needs to continue to use the study techniques which he has used to good effect in the past.

Mr. has dyslexia and it is likely that he would be granted concession if he requests these concessions when he sits examinations.

I wish Mr. every success in the future.

C.A.Tarett Cert. Ed., B.A> Hons., M.Ed., M.Sc., C. Psychol., A.F.B.Ps.S

Student G


Verbal Comprehension Index
Working Memory Index
Perceptual Organisation Index
Processing Speed Index
Age Adjusted Scale Scores
18
16
14
12
10
8
6
4
2
0
Vocabulary
Similarities
Information
Arithmetic
Digit Span
Letter-Number Sequ
Pic. Arrangement
Pic. Completion
Block Design
Matrix Reasoning
Coding
Symbol Search
Sub-tests

Appendix 3

Transcriptions of Interviews with Students

Interview Transcript: Student A
Sports Studies, Year One

22nd March, 2001

G. How did you get on with the 'beep'?

A To begin with it was a bit strange but then when I was doing my essay it was OK. I mean like after a few pages it was Ok but then sometimes I would stop naturally in my essay and I would think like where's the beep. You feel like you can time it in your brain, can't you?

G They are random but even so you get used to the rhythm. They didn't put you off your essay did they?

A I hope not

A I didn't know whether I was completely telling the truth, I'm not completely sure what I have to do here. Some of things (on the log) were a bit obscure things I was doing.

G Can you tell me what they were?

A When I was in the library, I wasn't actually reading I was, like, looking at the books , you know at the beginning at the chapters (contents list) to see if the stuff was in there.

G The whole thing about the writing log is designed really to document your activity: what you are doing while you are carrying out your assignment.

G From your point of view, did what I asked you to do actually document what **your** activities were or were there things missed out (of the log sheets) that you did?

A I can't quite remember. I think most of things were there.

G Did it show you anything about the writing process – about how you carry it out?

A I think it did but I don't think it's (the process) a constant thing. It depends on the essay what I do when. And the whole thing of actually starting to write also depends (on the essay). Because sometimes I will do a lot of reading first, or because it comes so early on in the course it will be easier to start it (start writing) and so I will have a wide knowledge so I won't have to go into books for little things (the detail for the essay).This time I felt I had to do quite a bit of reading to get the information for the essay. Sometimes I don't make many notes and sometimes I do (make notes first) and sometimes I don't. Because I know like with some essays I have pages of notes and then I put numbers in the margin (against the notes) and these are the points that I want to make. I did that with this essay. I wrote the notes as I was reading my lecture notes and doing the text books. I did quite a bit of juggling and the hardest thing about this essay was the whole structure. You know the points and everything. To go to the lecture we had like a discussion and every body came and talked about it and my tutor said that you could write a book about it (the essay title) and I thought well there are already lots of books in the library about it so how can I write anything original about the subject.

G It's very interesting that you don't have a set pattern for tackling essays. And it will depend upon the title of the task.

A Sometimes I will be able to sit down and write for a long time and other times with other essays I just occur a little bit at a time. It's a little bit, what do you call it, piecemeal.

G So if you can write for a long time, do you think you can do that if you have got a lot of knowledge (about the subject) and you understand it more?

A Probably, yes. At the moment, I need to keep coming back and doing little bits. I kept thinking about the title as I was reading the articles to make sure I was reading the right things that I would need to answer the question.

G When you were doing the writing log, and going through the writing process, do you think you had any surprises that you weren't expecting about the way you write?

A I think it was as I expected.

G Doing that writing log do you think it confirmed what you always thought about yourself as a writer?

A Um

G What sort of writer would you say you were?

A Um..... I think I don't like to force it. I really don't like, like I have to write a bit, get a drink, maybe, think a bit, and then do a bit more. But at other times I can get on a roll. But this essay was more like aah..... help..... oh dear..... but I really think like I don't like to force it, like make it happen if it's not just happening and if it's not happening then I just like, leave it and go and do something else and come back to it again. That's why I don't like leaving it to the last minute in case I'm not in the right mood. I often have to come back and I've got quite a few things saying (in the log) like reading my text and re-reading because I've had to come back from like being away from it to pick up more or less where I was.

G Have you ever had to do that sort of writing before, like what you were asked to do with this task?

A Um, I think so. It was a very hard one to do and I'm really not confident about what I'll get. I think I answered the question but I'm not completely sure. It's very hard in Sports Science because you have to be fairly scientific about everything so you can't be well argumentative and you are meant to be, and I just don't think it was enough (argumentative). So that was quite difficult.

G Did you understand the issues that you had to bring out or was that hard for you with this particular essay title? (finding out knowledge and understanding of the subject involved)

A No, I think it was quite straightforward as essays go. Understanding the article we were given was hard because there was a lot of well.... words I mean really technical words to remember. It was a factual essay but you had to understand and be able to explain what all the difficult bits were.

G Do you think the course prepared you for this sort of writing – discursive, critical analysis?

A Um, well she (the tutor) didn't really speak much about it. She told me that my points in my essay plan (when he showed her this in a requested tutorial) were right and that it was Ok but I felt like well not sure that I was doing the right thing. You see I find it hard because they say things like 'you make really good points' and I just need to expand on those points and I think well I'm over my word count already so you know what do I do and what do I

have to do. It's just like I have to follow through an argument and getting to a conclusion in a *paragraph* not in a whole essay. Um, well, depending on the sort of essay, I suppose.

G What other types of writing have you had to do this year? That was a factual one where you had to weigh up what was said in two journal articles.

A Um, I'm not sure how argumentative it was meant to be. You see that's another thing I didn't know completely how much it was. I had to do a review and that was my worst mark but it was one my first bits of writing for the course so.....

G Was that because you weren't prepared for that sort of writing and you didn't know the rules for writing a review?

A Yeh it might have been. I just didn't really have a clue. I mean I did try but.....

I did some argumentative ones. I did one on different people, I mean what different people think about a particular sport – I chose boxing. I practically did that essay in an afternoon or like one day. I mean I had done the background reading beforehand and that's like how I felt the way I should always do it (write essays) but I've just not been able to ..... I mean I did it in an afternoon, obviously I needed..... I got a good mark. I got 57%. They (tutors) have given us a list of the kind of things you have to put in the essay, like audience and all that stuff. Even so I'm not really that confident about it because it's more English. Actually, with my semester exams I did better. I got for the one 60% and my coursework files were 55% so well I didn't get 60s in the essays so I must have got higher in the exam to average 60. And I think what did I do? And like I've no idea. We were told what the questions were going to be and what to revise so I must have structured my exams quite well. Um..... I don't know if it was just a one off.

G Tell me what this essay was about. What did you want to say in it?

A Well, can I just get the essay title to remind myself. Oh, yes it was all about exercise and the study of the body when you are performing certain exercises. It was all about the psychology – no the physiology which is quite scientific. It is important if you were going to train a sportsman for something, like an athlete for the Olympic Games or something like that. I had to read two journal articles and write about them. But I couldn't just write everything that was in the article because I had to make sure that it was about exercise physiology. The hard thing is that the articles are not written as I wanted to write my essay.

G So you had to make decisions about what was important and select the best information for your particular essay?

A Yes. Also you had to compare the two investigations and you had to explain about how they did the research which was quite difficult when there was a lot of technical words there as well. I had to explain about the Human Physiology and about the muscles and everything. I wrote about the way the experiment was done and who took part in it. The other article was about rowers and examined muscle dimensions and the activities. I tried to say what the two articles had in common but I don't think I did enough on this bit and I should probably have done more on comparing and weighing up the evidence in them. What did my tutor call it? Oh yes, analysis of the information.

G What did you find was the easiest part of doing the whole essay?

A Um. It was all very difficult. The reading was seemed to take ages but it probably didn't. Well, I think .... When I had sorted out what they had done and found out.....

G How did you sort out this information?

A It was difficult because of the long technical words but I just kept reading and re-reading the papers.

G It was complicated

A I started (writing) the essay and I hadn't finished the second paper. Then I thought no I'm going to stop writing and finish the reading but I didn't actually put that in the log. But it was just course reading.

G Do you need to do a review of everything first? Can you write before you get all that information?

A No I have to see what happens at the beginning, what happens at the end. Especially for this essay I needed to know what happened at the end of each experiment. I always find writing the introduction and the conclusion bits quite easy. Because I can just spin off the words already used. I don't know if I'm good at those, though. I like actually constructing really clever sentences with cool words.

G So do you spend quite a bit of time trying to get good quotations?

A Usually yes but I didn't need to do that in this sort of essay. I find it's quite easy to do the beginning bit after I've read the book because it is just explaining what has happened and all that.

G How did you divide up your time? Did you spend time with an overall time plan: this much time on the reading, this much time making sure I've got my notes, this much time on the writing and this much time on tidying up

A Well, em. I don't think ... I think what I need to do. Because it might take longer than I think. I mean I do in my brain calculate how many hours in a day I would work because I think that is important. Then I can always make up one day if I don't spend 10 hours on the essay.

G Have you any sense about how it all went and how much time you spent on each of the aspects of the process? You said for example that you spent quite a bit of timing with the reading for this essay.

A Yes well I had to because of this type of essay. I was like having to do the whole essay on the papers so I had to make sure that I understood them because that was what the essay was about. But in the writing it took me a long time because I was always changing the words around, like. But I'm not sure how much I changed it really.

G What about getting your ideas into sentences within paragraphs? Does that take quite a bit of time?

A I don't have a sentence in my head before I write it down. The I put little bits down and er.... And then I think and then .... Or then the sentence just happens. I don't think about paragraphs at all. I might think about them later and decide to put them in later.

G So are you grappling not so much with the ideas but with how you want your sentences to come out. So are you concentrating at this stage with the language?

A Um, well yes I suppose. But sometimes I get annoyed with myself because I know what I want to say but the words won't come. I mean I can't seem to remember the word I want and it is frustrating trying to remember the word.

G How do find reading around the essay (collecting, selecting and summarising)? Choosing the best books?

A Often we get quite a long list of books to read. Of course for this essay it was different because we were comparing two papers. I did find it quite hard because it was more like looking behind it and I had to see if the experiments were similar and if the findings could be related. With another essay I had an idea for how to do the essay so I knew what to look for to read. Articles and journals are really quite hard because there are so many of these articles.

G How do you make your choice (select the most appropriate)? Do you read the abstract or what?

A I try to look at the whole article. But I tend to avoid them because I find them really hard to read. And I don't seem to have enough time to read them. Also it's the same with books. I have them out of the library but often take them back late.

G Do you use Hartley Library rather than just the NC library?

A Not really because it takes so long to go up there and then to find the book and then to decide which one I need. I really find it annoying that it takes me so long to find books in the library. It might not be that it takes me any longer than anyone else but it just irritates me that it should take so long. I don't like working in the library because it is too quiet.

G What do you do if you read two chapters and you have to sift the information or they have conflicting information. What do you do? Have you found this at all?

A Er… I don't like doing that but if I do I have to make notes because I would forget what one person said when I went on to what someone else said, if you know what I mean. I do one and make notes and then go on to another and do the same again. Then I have to look at both notes. It may sound slow but it is the only way I can be sure of doing things properly.

G You made notes for this before you started writing your essay. Sometimes do you do your writing with the books there?

A Well I have the books all around me when I'm writing. And I have little bits of paper in them and I'll find a point and I will have a look for the point backing up my thought or the evidence or a different way of putting it or another argument or something. I dip in. If I've done a bit of reading, then I will think of where did I see that and I will have to look in the books to find it.

G Do you think making notes would slow you down?

A I'm not really sure. Sometimes I think if I had a good way of getting my notes down it would be better and I would do it.

G Do you use bullet points and sub-headings when you are drafting?

A Not really. If I make notes I put numbers in the margin or if I've photocopied bits I put numbers next to it so that I know roughly where it is likely to go in the essay.

G Do you do a plan?

A Yes, I do it right at the beginning because if I didn't do it then I would not know where to go for the reading.

G So do you use the plan to direct you?

A Yes. But I don't always stick to it because I might make several plans – I mean they change as I am doing the essay. Like this essay, I had a vague idea of how the essay was going to be and then I started writing but I kept looking back at the plans to make sure I was answering the question.

G Have you been told by tutors to do this kind of thing?

A Probably. Yes, when I was doing 'A' levels my tutor said I should always check the essay title to make sure I was not writing rubbish.

G Do you write straight onto the computer?

A Yes.

G Do you keep referring to your plan while you are writing?

A Yes, I stick it up on the wall.

G When you are drafting, do you write one sentence then stop and read it? Or do you write a small chunk and then revise it and think about how you could improve the sentence structure etc.?

A I think it tends to be a bigger chunk. I just want to get a decent point done and then I can look at it?

G Do you spend a lot of time changing your sentences (editing)? Or do find that you get it right virtually straight away?

A ER Not completely sure. I don't think I spend a lot of time editing. Quite a few sentences will stay the same

G Do you spend any time proof-reading your work?

A Obviously it comes up on the screen – underlined in red or blue, I can't remember which. I do a grammar check and then when I have finished it I print it out and read it with a pen in my hand and scribble all over it and change bits of the text. I think I can spot my own mistakes and read it aloud preferably. I tend to do most of my changes as I'm going along and not spend ages at the end but I expect I should!

Transcription of interview on 13th March 2002

Interviewer: Geraldine Price
Interviewee: Student B

GP So, you've used Inspiration?
B Yes
GP How did you get on with it?
B I find it-'Cause I get really confused trying to work out, like, the written one I did for my tutorial I get all confused, so I like just using it, so that I do sort of like a flow *(chart)*, so I know where I'm going. And then, 'cause Inspiration just lays it out in completely little notes and you know what you've got to put in each part; where you can, even if you print it off like I did with Hilary (DSA Tutor) just write extra bits on that I'd forgot, it just lays it out so you know what you're doing.
GP Good, good, yes
B They don't flow very well, my essays, so I use Inspiration so that I do, like paragraph for the first one, then for the second one, then for the third one and then, at the end, what I do is, I, either I'll put, like the sub-headings, so it's all broken down, but I got told off for my last essay using too many. So then I started using, like, interlinking the sentences, which takes me quite a long time, but eventually it helps make things flow a bit better. Sometimes I write, like ideas for interlinking sentences on arrows, so I know what to do.
GP Well done, I'm very impressed.
B I knew how to do it 'cause Hilary showed me.
GP Excellent.
B I didn't know how to do it before.
GP But what a difference it does make.
B Yes, it helps-my structure's terrible.
GP Good. Now, how did you get on with the writing log?
B It was alright, actually, towards the end I got a bit, a bit annoyed. The beep was giving me a headache towards the end, but, it was, 'cause I think I take so long, I have to do more, but it was fine. Sometimes, a couple of times it was, like-oh, which sort of heading?- but it was ok..
GP That's good. The writing log was designed to document your activity whilst you're writing the assignment. From your point of view, did it follow, you know, the sort of things that you would usually do; did it describe the sort of activities that you would go through when you're writing an essay, like, you know, reading etc.?
B Yes, it did, 'cause I, all the sort of headings that I did , I think there was only once or twice where I put "other", but the rest of the time I always fell into those categories.
GP Excellent. Can you remember at all what the "other" was that you were doing? I know it was quite a while ago.
B I can't remember now, it's written on there somewhere.
GP Oh, that's fine, that's fine. Did it tell you anything about the way you write essays and how you go about the whole process, or do you know how you do that anyway?

B I think, I didn't think I was very structured to start off with. I started realising that I have got my own structure. I read all my sources and most of the time I copy the plan first and then I read the sources add bits. A lot of the time I, sort of, I realised I was dawdling, or I was, sort of, sat there, looking at a word, thinking "what the hell am I going to write?" Which I didn't realise I did quite as often, but it did, sort of, make me realise

GP Oh, good. Yes, yes. We are all different. Were there any surprises? Any things that you didn't expect, that it showed you?

B Dawdling.

GP The dawdling.

B Yes. I didn't think that I was quite as distracted -I know I get distracted quite easily but I didn't think I'd be as quite....and it took me long. I was found a few times I was sat there for a couple of bleeps, still on the same word, still trying to work out what to say or how to spell it or whatever, so I realised it took me longer than I thought.

GP Yes, to actually get the words...

B Yes.

GP ..that you wanted.

B ...get together. I've always known it takes me longer to do things, but I didn't realise I was quite so hung up on (*words*)

GP Well, it's good to know that, because then you can ask Hillary how you can find strategies to get round that.

B Yes, I've already had a few things on, like, "there", I always, two different, I always get jumbled up and I've always some things mixed up and Hilary knows a few other thing which I find difficult and mixed up, so it's just once you recognise – you know.

GP Yes. The sort of essay that you documented, have you done this sort of writing before?

B Yes, mainly 'cause I was here last year, so I knew how to write the main aims 'Cause I was trying to change it slightly, because the first essay I did I got told off because of the paragraphs.

GP Right. Do you think that the course prepared you for this sort of writing?

B No. They don't... the first essay, like the first, well last year, because it was my first year I did my first essay and I did really badly because I didn't know how they wanted it to be written or I didn't know the language and things like that. I struggled. Now I've got an idea, because you get a little bit of feed-back I used to find the handwriting difficult to read but you can more or less get something out of it. Although, I mean, there was an essay last year and they had quite a, sort of, a good point and I couldn't read the end word, which was quite important. It took me a while to, sort of, work out what, you know, that is, I did find it difficult to start off with, and even now they give you, like a, title like this term we've got an assignment and it's not, like, clear, like, I mean, they give you, like, intravenous cyle but nothing like, you know, they would like, sort of something that would flow with the amount of language.

GP Which is more helpful, really, than what font they want.

B So, I struggled with that.

GP Was this assignment that you did similar or different from the things that you had to write in the first year or was it virtually the same?

B It was quite similar, although it was quite a lot on, sort of, it was an opinion thing, so it's quite difficult, well we had two opinion essays and they've been, sort of, a little bit different from last year, which are difficult 'cause the last essay I had the lecturer didn't, sort of, agree with my opinion, I don't think, so I, sort of, said I was reading the wrong papers, but it is a bit awkward which was nice, but, no they're, slightly different , but it would be nice, sort of, if, at the beginning they said "ok, this is, sort of, how we want it to be written". 'Cause it's, sort of guesswork and it's difficult.

GP Yes. Which is much more difficult for a dyslexic writer.

B I sort of tend to make it.... . Like, I can work so, so hard, like the last one I wrote, I , I mean this one , actually, I worked really hard and I spent a lot of time and, although I got a C, which I was, sort of, pleased with, I was disappointed because I worked really hard and I was hoping it would get something more.

GP Higher.

B Yes.

GP Yes. It will increase because gradually you'll get to see "this is the sort of style they want me to use" and then you've got to practise it. It's no good just knowing it, you've also got to practise it.
What was the essay about?

B MMR.

GP Oh, was it?

B Yes, the Rubella jab. So, it was quite topical.

GP Yes. So, you had to give an opinion at the end of it.

B Yes, it was, 'cause, I think most of the way through you had to have an opinion on most of the stuff, so you have quite a, it was difficult because, although you've got to, sort of, put it in, what's the word, if you don't have an opinion, you do to some degree (*by the end of the essay*) the way you write it always get one.

GP What sort of evidence did you find with the people totally against it, because, I mean it is very controversial?

B Yes. I mean it's like the parents were always against it. The people that were against it, we found were because they weren't told enough about it.

GP Ah. Right, it was a sort of fear.

B Yes. The Press and, sort of, it all rolls up into one thing. And the person that started it was the wrong doctor, Doctor Wakefield. He's now, sort of said "Oh. I'm sorry, I was wrong", but still it's all going on, because everybody's now got the idea in their head and there was something in the Echo the other day, actually, this lady saying, she was involved in a study of it. Oh, he said that MMR did this to my son and she's now trying to sue the company who make the vaccine for compensation for her son. Though there's no, sort of, evidence, it's all sort of, he's made her more passionate about it before.

GP What do the medical profession think about it, then?

B Well, they think it's fine. But the reason why people have disagreements is because autism was diagnosed around the same time as the MMR vaccine was given. And now autism's more known, so more diagnoses are happening and so, it's like, it's all, sort of, fixed at the moment.

GP It's quite tricky, isn't it, because autism has come to the fore people know more about it and there's more research about it, it may have been that there isn't a direct link there.

B I mean, there's a few things might support it - I did, like, a talk the other day at my GP's – we go to GPs every few weeks - and it's about, we all had different subjects, we had pros and cons. We also had different people to do the pros and the cons and so I didn't have it all to myself and smoking has been found in some circumstances to cause autism but because smoking is more socially acceptable it's not – that's life

GP It is interesting. It's a tricky field, medicine. When you were doing the writing log, how did you go about dividing up your time or do you just do your essays when you can find a spare moment. Tell me a little bit about that.

B I try, because we get our timetable which is different from week to week, so our time is difficult to manage in a way like sometimes you can get like a consultant who has got to change it to another day because he has got a clinic but most of the time I try to put like an afternoon here or an afternoon there like to spend, because it takes me a while to get into it because of my concentration I tend to spend a long time doing it, at least three or four hours doing it, sitting down and do something on it. Otherwise I don't get anywhere and it is just a waste of time. But that is what I try to do either sort of write it in if I know I have got an afternoon off I write it into my timetable.

GP And that works better for you to do it in chunks at a time rather than snatching moments here and there.

B I've done like the first paragraph or the first question or the first part and although I do it most of the time in parts I just find that I need to spend a lot longer than an hour here or ten minutes...

GP Have you got any sense of what parts or what types of activities took you the longest – was it making notes – you might not make notes – getting your ideas into good sentences and paragraphs or finding the words that you wanted or was it something else? What sort of thing do you find takes you the longest?

B The words and the structure is what I spend most of time doing. Although I've learnt from Hilary (DSA Tutor) she says I have improved a hell of a lot and I'm getting more a sort of medical (*style of writing and use of terminology*) – it's only because I sit there so long and try to work out how to put things or what words to use plus my medical dictionary, my normal dictionary and I've got a talking one as well so I sit there and try but the difficulty is that you can't use any of them unless you know or have a vague idea of what you want to say and with my, I don't necessarily make notes but, if I use the internet or a book, I normally – if it's a book I scan it and put it on my computer or internet I'll save it in words and then bits that I think are important I sort of copy into another bit and then I'll save it as one bit so that I've got notes that I can highlight words and print it off so that I know that helps. It takes a long time but that is the way because otherwise unless I have it all down on paper in front of me I can't search.

GP That's a very good strategy for triggering off the words that you want by getting others, getting them in front of you

B And just using the Thesaurus and my talking software it's got a lot of words. I couldn't write an essay without my Thesaurus because I could never think of *(words)*.... I can think of simple words or I think the words need jazzing up a bit or making it slightly better

GP Do you use that a lot of the time?

B I do because that's a problem I've got I use the same words too much.

GP When you've got to read information for the essay do you find choosing the best, what is important, do you find that difficult or can you pick things out and say yes that's what I want.

B NO I find it very difficult to work out what is relevant. A lot of the time I sort of get a feel that this isn't relevant to this because I can't distinguish. To me I have to learn that subject and I can't distinguish on what is on the need to know and what has just been. I just really struggle. I just can't work out what is relevant. Like when I'm writing notes from a book, if I have a book and I'm left alone then I will struggle not to copy it down because I'll think people have sort of read it and they'll think I'll notate it and put it in their own *(words)* but I struggle to try and work it out and I'm going to miss something that's relevant so.....

GP I will just say that it improves with practice! So do you ever have any problems when you are reading about a subject and two different authors say something entirely different, they contradict each other. How do you cope with that?

B I get completely confused and I try to email someone. In the assignment which I've just recently done at the moment I was reading – it was all about lung mechanics and what happens – and I get confused but there's lots of the oxygen in the lungs and the oxygen in the blood and in these two books.... it just doesn't make sense and one's different and so I emailed my lecturer but I didn't get a response from him and I caught up with him later on to say if you don't – in fact a lot of lecturers don't use their email. There are a few lecturers that I would email but some seem to disappear. But I found him and spoke to him.

GP Actually talking to somebody sometimes can help.

B Yes because I just get meaning from these

GP What is the hardest thing about the reading for you?

B Getting my words jumbled up probably. I sort of ... If I've got my acetates which.... my reading has improved since I've had my acetates and I sort of lay them over and at least I know where I'm going but I've still got one eye on is on the words ahead and I'll sort of read it and I'll sort of get confused and sometimes if I read in a medical book I can confuse and what it true I'll have the opposite of in my mind which I do find the most frustrating.

GP What colour acetate do you use?

B Lime.

GP And it has made a difference?

B Yes

GP What was it like before and after. Like before you used to use them? I mean you wouldn't know until after if you know what I mean!

B Before I would like lose my place not only with the words but sort of like the structure

GP The line?

B Yes and then although I used my finger it is not so concentrating and I get all frustrated looking at the white page and the lime I think is quite calming and it helps slowly step by step and it doesn't seem so daunting if you just look at one line rather than a whole page of text.

GP That's good. Do you make notes then from books, journal articles. You told me what you do with the web things – you can cut and paste which is good and then you can print out. Tell me what you do when you have got medical books or medical journals that they want you to read?

B If I'm doing it for an essay, I'll scan it in same as I do with the Web but if it's not for an essay then I do try to make notes but I struggle. As I say I tend to write too much and copy it rather than put it into my own which is why I sometimes try to cut and paste it and highlight words and I won't tend to do mine

GP So in the past did you use to copy quite a lot of stuff down.

B Yes. That's why in my essays there was a lot of plagiarism. It's a nightmare really. Obviously, I wouldn't want to admit it but after a while you look at it and if you got a bit down and you think 'yea, that's what I wrote in that letter or that's what I've.... It's difficult to distinguish between my way of saying and then you realise that it makes it harder and it comes into essays and you put in bits word for word to get everything in and it sort of takes longer it seems to , you know everyone else is so good, why change it. How can I do it?

GP Were you taught at school to put things into your own words?

B Not that I remember.

GP Do you use bullet points at all when you are making notes or do you tend to write out in sentences?

B I **always** try to use bullet points just so that it's all.... Like even everything is all bullet points with my notes even I'm sat in lectures or seminars..... I'll like bullet and put whatever it is, like subject bits, and make sure that there are one or two lines between them because if it's more spaced out it seems – it's psychological – it's not as hard to learn because it just seems so much in one paragraph.

GP Good. Do you ever use sub-headings when you're doing notes then?

B Notes I don't tend to but in my essay I do but then I got told off because it was too much and it didn't have a good flow.

GP Oh well, that's something you have learnt. You have to look at it from the reader's point of view, don't you? You might not be used to doing it that way.

B Yes, you read it and think 'yea that's that bit done and that's that bit done'. I suppose it's to sort of

GP Mechanical? It just doesn't flow. What do you do with your notes when you are doing the essay, you've read some things and you've made some notes .... And then you start on the draft. Are you surrounded by notes? Do you then highlight sections and I'll throw all the rest away and I'm only going to keep these? How do you go about that?

B I normally when I'm doing my notes or when I'm printing off the things from the web I try to make sure that everything is in its own category so I go back to my plan so I'll have a pile for number 1 and a pile for number 2 so I've got everything otherwise I would jumble them up all around and

I don't know. Sometimes I'll have a paper and I've written notes from it and it comes into like section 1 and those go into my drawer for references because I know that I have to do the references at the end. I can't manage to do them during but I find it easier to do them at the end. Then I put them in a pile. *(She is referring to the numbering of her flow diagram plan for each of the sections and she categorises her notes using this Inspiration flow chart)*

GP I'm very impressed. Very well organised. Where did you get told about that?

B I didn't. I just came about it because I struggled and I just tried to organise myself. With everything I try to be organised and know what this is here etc. And my notes are all organised – I've got like *(file)* dividers and I divide each subject apart because it's not that I've been taught which is a shame because it might have helped earlier on. It has just sort of come about that I've realised that I need to be *(organised)* otherwise it all gets on top of me.

GP Good. Do you write straight onto the computer.

B Yes.

GP You don't handwrite

B No I would struggle to read my own handwriting. And it takes so long to write.

GP At that stage when you are putting it onto the screen and writing the essay, do you have text books around you or at that stage do you put the text books to one side and say I've got what I need from the text books, I'm just going to leave them.

B Yes. Normally I'll go through all of the books which I think I will be useful. If I go through a section and I think actually that's not quite enough, it hasn't quite explained it I might then go back to the book or look for another book but normally I would just stick with my notes which I've done.

GP Good. You do your plan at the beginning?

B Yes

GP Do you add to it and change it as you go along or is it fairly ....

B Always

GP Always. Good. Well I think that is a good thing.

B I always find that like because I normally do it before I do my notes and my Inspiration *(flowchart)* as well so that I know for most of it if I do my short bit then I know exactly what areas I need to look more into then I know what to make notes on. But I always miss something out or I decide actually I think that 5 and 6 *(on Inspiration flow chart plan)* should be the other way round changed around so I sort of change round the paragraphs.

GP That's good. That's what a good writer does. So you are constantly using your plan by the sound of it. That's good.

B I've got like a thing that administrators have while they typed so I've got my plan so I know what I'm doing and what bit to do.

GP Once you have written it out or written a section out do you read it through and make any changes to the wording that sort of thing?

B As I am sort of doing it I'll always like sort of write things and read it and say is that alright, is that not alright and in the end I sort of do it sentence by sentence. And then once I've done all of them I them go through it – so

like I've got my whole essay and then go through paragraph by paragraph again and do it that way. But throughout I try to do it sentence by sentence because otherwise my sentences don't flow as well.

GP Yes, so you need to check with each sentence as it's building up. I think most dyslexic writers do that and that's what takes the time sometimes but it gets you better results. Do you, therefore, get the computer to read stuff back to you or do you read straight from screen or do you print it out. How do you go about it?

B Normally I print it out. Then I leave either...., it depends whether I've got a headache or not, I leave it *(a gap in time)* I get the computer to read it and as the computer reads it follow it myself and make little changes throughout or I'll read it through in my head and do it so it sort of varies on timing.

GP Yes. How do you go about checking, doing the proof-reading bit, the spelling and deciding whether it does sound OK. Can you check your own work?

B I've started to. I always try to read it through but the problem that I have is that I read it how I think I've written it and then I miss a lot of things. So like I went through it and then Hilary went through it and my assignments have got better.

GP You know your own errors? So you know what to look for?

B Mostly, yes.

GP That's good.

B My sentence construction is getting a lot better.

GP Yes.

B It's just that combining that *(sentence construction)* and the medical terms I sometimes get a bit hazy.

GP So you are pleased

B Yes.

Transcription – Student C Archaeology 2nd Year
10th May, 2002
Interviewer: G. A. Price

GP How did you get on with the writing log?

STUDENT C I found it a bit difficult first of all because I wasn't sure whether I was supposed to do the referencing, like going into the library looking for books as well, so for the first about 10 sheets it's me on the library computer doing a WebCat so I ended up using all the sheets you gave me literally down to the last one, literally finished on the last sheet. But it was OK just it seemed I didn't use all the little symbols. I tended to use 4/5 that I used over and over again. But I did specify, like at the beginning when I was on WebCat I did put the 1st 'RRs' were me on the WebCat.

GP That's interesting. Can you remember at all what those 4 categories were? Obviously, one was 'reading'

STUDENT C One was the making the 'outline' 'checking through', 'typing' was obviously the main one. Oh…..

GP Doesn't matter because obviously when I analyse it statistically I shall find out which they were. And that's good because everyone has different ones. Because it shows your own style of working. The diary was designed to document your activity while you are doing writing assignments. From your point of view, do you think anything was left out that I didn't put on that?

STUDENT C I suppose with the references you could have put something like actually looking for books on the WebCat *(database searching)* because that is the thing I spend the most time on but um I suppose, I know it sounds silly, but perhaps having like when someone interrupts you because a lot of the time I'll be doing the work and someone will come into my room and talk to me while I'm doing something and I didn't day-dream that much because I was waiting for the bleep to go but when I had somebody come in and they'd start talking to me I didn't really know because it wasn't daydreaming and I was often discussing my work with them.

GP That's interesting. I think that that is important don't you? Do you discuss your work, do you find that helpful?

STUDENT C Yes, I think so – it's kind of like a break but you're still got your mind on your work.

GP What did the writing log show you about your own writing – about how you go about writing? Did it come up with any surprises?

STUDENT C Not really because I know what I do with my work. I know that I tend to just kind of write it and then just check it through at the end and then the only thing I do before that is go round the library looking for books because I'm not very good at this whole plan writing thing *(ref. to mind maps planning).* I just don't do the plan. It's not that I don't like it; I just want to get it over and done with and I tend to do just a jumbled essay, rather than write a plan – I should write a plan, of course!

GP Well no if you prefer to do it that way. So you just let it all come out, you let all the writing come out. And then what do you do with it?

STUDENT C I just tend to normally leave it. I tend to do just a very, very small plan because my dyslexic tutor made; we'd like write a plan about how I was going to go about things. Like I just stuck to that. It was like a sentence of each topic and then just did the topic. So I just had 5 sections and 5 topics and did it like that.

GP I'd like to talk about essay writing in general. Have you ever had to write anything like this before?

STUDENT C All the time. It's my main thing in my subject because it's an Arts thing.

GP Do you think that the course has prepared you for this type of writing?

STUDENT C I suppose it has because in the 1st year we had loads of experiment essays but before I came to University I wrote about 2 essays, only because I was forced to. I wouldn't have done this degree if I'd known it has this many essays in. I would have done Maths or something! It did kind of prepare you because in the 1st year you did quite a lot of essays but they didn't count for anything so I suppose they did give you a lot of back-up.

GP When you say you wrote about 2 essays prior to coming here was that because of the type of work that you were expected to do for GCSE and for 'A' levels?

STUDENT C I suppose so because I tended to do subjects that weren't essay orientated and only wrote in essay when you had to hand an essay in. Or the essays weren't what I'd call an essay it was just like a comprehension, like in essay style.

GP What did you do for 'A' level?

STUDENT C Latin, Maths and Music.

GP Latin? Interesting.

STUDENT C Yes, I had to write essays for that, unfortunately, and for Music.

GP Did you enjoy the Latin?

STUDENT C Yes, because it helped me a lot especially with my French at GCSE. I did Latin at GCSE I couldn't speak French to save my life At Primary School I was fine. I just got to a level and I couldn't get beyond it which was sort of pre-GCSE. But it helped me with understanding the vocabulary and things like that.

GP Has it helped you with vocabulary that you have to use when you are writing essays?

STUDENT C I think the problem is that I can't think of words to come out of my head but if I can see a word I can tend to figure out what it means by like seeing what Latin it comes from.

GP So in actual fact the Latin experience you have had will help you with your background reading?

STUDENT C Yes, definitely.

GP What did you find was the most easy part of writing this whole thing. You know from finding the information to handing it in? Don't say handing it in!

STUDENT C I think, when the essay I did was a kind of talking one – your own views – and when I get on my own view I can write for miles and that. So it was quite good.

GP So what type of essays are you not so comfortable with?

STUDENT C Ones of which are about something which I have absolutely no interest what so ever and I had one of them recently. It had to be about 4,000 words and it had to be purely facts because I knew nothing about it at all and I really had to do a lot of reference reading, and I don't like that.

GP Do you ever get essays where you have to put different points of view and discuss what people think about something?

STUDENT C Yes a lot of them are like that – especially the one I just did. It's where it's yes or no and you can discuss what different people have said. I like ones like that because I tend to know the different sides and I do have my preference sides but I have got to be careful not to show the bias because you get told off.

GP Just very, very briefly tell me what your essay was about because I need to compare what you have written with what you think it is about.

STUDENT C It's along the lines of how ethnic and diverse cultural groups can be made to go museums and it was quite because I was immediately going about how we can make museums less boring but I had to think no it's not a case of that you've got to look at the why they don't go and how the museums can actually get to them because I suddenly thought half way through the essay – advertisements – it's all very well changing the museums but unless they don't know about it and that was a whole field that I could have written another essay onto.

GP What was your conclusion?

STUDENT C Just get rid of the old image and advertise summed up briefly!

GP When you undertook the writing log, how do you divide up your time? Tell me about how you usually go about an essay? You have been given the essay title, what do you do?

STUDENT C I sort of analyse the title because it's usually written in such a way that I don't understand what it is trying to find out and sort of pick out all the words that you are supposed to realise. And I think right I've got find out about ethnic cultural groups and museums and then I go to the reading list for the whole course or if there is one for that essay, then off I go to the library and try and find it and most of the books have already been gone out for three weeks so then I try and find one similar or ones that I have got for another course which I think are relevant and then I tend to photocopy pages, if there are specific pages that are useful or I tend to just get all the books out that are on it, take them home, dump them by the side of my computer, have a quick scan through, do a plan, and then start writing the essay and keep writing to a book when I want to find out something more about the topic.

GP So I've got this picture of you, you have actually got the books physically by the computer and you dip into those when you need them?

STUDENT C Yes.

GP So does this mean that you don't write notes?

STUDENT C No, I don't. That is one thing I do not do for an essay. I can't sit in the library and take notes from a book because it just doesn't do anything for me.

GP Is it because your notes aren't effective or because you found your notes aren't' effective?

STUDENT C Yes, I think that is probably it because I might take a note... I notice that when I do reading, background reading for a lecture, I tend just to make notes so that I can concentrate on it and I suddenly remembered something that I had read and I went back to look at it but it wasn't enough for me to quote it and say more about it and I didn't have the full reference and I couldn't use it in the end and I didn't have enough time to go back to the library, find it, get it out of the book, find the correct page which had it on so I just had to give with that. And I get quite annoyed so but if I've got it there I can look at it there and then and scan through the book, find the bit that I want, that backs up what I'm trying to say.

GP If you don't make notes, is it because you have never been taught how to write effective notes?

STUDENT C I think that's it because I went to a lovely private school where they wrote everything up on the board and you copied it down in your book and I suddenly came to the University and you have to go and find the books yourself. It's a bit of a culture shock!

GP Often students find that they haven't got the skills that are needed for now.

STUDENT C And I don't have the patience, as well, to sit there in the library and take notes. I only have a concentration span of about an hour at the most to sit there and read the book and it takes me about an hour to **find** the book so.....

GP You say that you photocopy pages which is a good strategy, do you ever use a coloured highlighter?

STUDENT C I tend to. If I find a good point because if I've got like a couple of pages photocopied from a book because I haven't got the index to find out exactly what I want I'll go through and just highlight something because that will be a good point to bring up later in the essay.

GP Yes. Do you colour code information or is it just which ever colour comes to hand?

STUDENT C Normally which ever. I did try a long time ago to do an essay completely colour-coded and I ended up getting something like 35% for it so I never did that again. So it was one of those essays where I didn't have any interest.

GP You use the WebCat. It may be in your subject that what I'm going to say this isn't possible but do you use the Internet for reference and for getting information?

STUDENT C I do tend to because I am lucky that I have the Internet at home but I know that a lot of lecturers don't like it because it's not true factual stuff so it's quite difficult to use but a lot of them *(lecturers)* reference webpages in their course handouts so I do refer to those but I'm getting to know the lecturers who don't like webpages and those who do.

GP Fine. Good strategy. Do you find, because some students whom I've interviewed have said, of my subject is such that a lot of information, engineering information, is on the internet and I scan the information; I highlight the information; I copy it and I put it into notes in my computer and then I've got some words to play with. Do you ever do that or does that not apply to you?

STUDENT C No, the most I've ever done is highlighted a whole page and copied it onto A4. I don't like to print it out because it's normally about 29 pages and I don't want to waste the paper but I find that I can't read notes off a computer, I really can't do that – make notes off a computer. I've got to have it in front of me, a piece of paper?

GP You are not alone in that. Many people can't read from a computer screen.

STUDENT C I can read it but I can't take it in. I can just scan it that's all I can do.

GP I actually highlight on screen and have two pages running so that I can make bullet points from things on screen. But that's just the way I work. Do you find that if you ever make notes, if you ever have to, do you find that you find a good piece of information do you copy that word for word or can you summarise that into your own words?

STUDENT C I normally find that when I'm reading I find that I've read 4 pages and I think, oh dear I haven't made any notes for this. So I suddenly think what is that 4 pages saying and I think right it's saying this and I put that down. But then I find the problem is that when I go back what I have written down doesn't make any sense out of context because I haven't got the book in front of me – it isn't very clear.

GP OK. What takes you the longest – the reading for it; getting your ideas into sentences and paragraphs; finding the words, the actual words that you need or something else?

STUDENT C I think that it's got to be the finding of the books and that. I can write an essay in about an hour. When I've got the books in front of me I can just do it as long as I have done a reasonable-ish plan so I kind of know where I am going but it's the getting the books which I find is the problem because I need to find the references to put into the essay to back up what I'm trying to say.

GP You mentioned that you can spend quite a bit of time finding the books.... What is it that takes the time for you?

STUDENT C It's not, because I mean the course handout, the one that comes with the essays has normally got all the books in, so I just sit by the WebCat but it takes time with the WebCat writing down all the references what library they are in that takes the longest because once I've got to the library now, in the first year it took me ages, now I know where the G-Ns are and off I'll go. But when they are not there that's when it takes a long time because I have to go back to the computer, find out where they are, see how long they have gone out for, think whether it is worth it, whether I should find something else which is similar or get the older copy.

GP What are your reading skills like? Would you say that they are good?

STUDENT C When I read, I read well but when I lose concentration it's pointless me reading.

GP It just goes in one ear and out the other?

STUDENT C Yes, I couldn't tell you what I have read. I'll sit there for an hours and I couldn't even tell you what the title was.

GP Have you ever been told or do you know whether you mis-read things when you are reading things quickly?

STUDENT C I've never had anything done or tested or anything like that. I know at school I was probably told off for just not reading generally. I just don't

read books. I'm still a member of the Beano Club! That's about the (*level*) of my reading.

GP Any reason why you don't read?

STUDENT C I know when I was at Primary school I used to read quite a lot of books. I know that my parents had an issue with the teacher because the teacher said I wasn't reading and they took in all these books which I had read and they ended up moving class because they had a problem with the teacher and I did read loads of books and then suddenly one day I just switched off and probably found TV and that's been it!

GP So it's not reading is a **chore** that has put you off reading?

STUDENT C No, but I think that it's just I know it sounds silly but I think a lot of the stuff you can from books you can get from television but when you are watching TV you can do something else at the same time. So I would rather do two things at once than sit there having to hold the book when you can't do anything else, I can't even listen to music when I read so…

GP Do you ever listen to audio books?

STUDENT C I've never tried them because I think I would just switch off because I don't even like it on the radio station when someone is talking for a long time.

GP Do you have to see things in front of you? You were saying that you like to have the paper printouts.

STUDENT C Yes, I think I like to have it there in front of me. And if it's broken up with pretty pictures, like TV is, then I'm happier.

GP That's fine. You've selected your books, when you are reading, do you have any difficulties or does it take you a long time to select the important information that you need for your specific essay?

STUDENT C I normally just turn to the index and find the words that is something to do with what I want to do, or look at the front Contents and then I can then just scan it, I can normally find a quote because I really need a quote to back up what I'm saying because normally the lecturers kind of give you, you know what you have got to write, but just make it a lot thicker and put in lots of quotes into it.

GP Do you use your lecture notes when you are writing essays?

STUDENT C I have sometimes but not very often. I think now they are getting more, because the lectures are getting more intense and to make notes they are not very clear outside the lecture because there and then they make complete sense and then when you go back over them they are a little bit Oh! But there again when I make revision notes I go over them they become more clear because I am deeply back into the subject and it comes out.

GP Finding the books and finding words are sometimes the things that slow you down when you are writing essays?

STUDENT C Yes, definitely.

GP Do you ever use journal articles or have you not needed to in your course?

STUDENT C All the time. It's all journals. And now I have found out where they are in the library! And I like them because they are normally shorter than a book so it's so much easier to read and I know this sound pathetic but the title is what it is about! Whereas in a book you don't know what it's going on about.

GP Usually with well-written journal articles you have an abstract or a summary at the beginning so you have an idea of what is going to happen. Do you find that you use those summaries?

STUDENT C Yep, If I'm a bit unsure that the article is not about what I want to know about I just quickly have a read of the summary.

GP So you don't use notes, you sit there at the computer and you start writing. Do you make lots of drafts of your essay?

STUDENT C I just put it straight onto the computer and I'll keep putting bits in sometimes or deleting things or just flow it out.

GP So you do quite a bit of editing while you are writing. Now by editing I mean reading it again, looking at it and thinking 'no' I need to change the words there or I need to put it in a different way?

STUDENT C I don't really tend to change it round that much because I rely on grammar thing which comes up in MS Word. Because every time I type sentences, I can type quite quickly but there are a hell of a lot of spelling mistakes in there. So when I write a big sentence I go back over a paragraph and do all the spelling mistakes and then it underlines all the grammar things and I do rely on it changing the grammar things for me but only at the end when I read through it will I change the sentences to if it doesn't make sense because the trouble is a lot of the time it makes sense to me but it doesn't make sense to anybody else!

GP That happens with lots of writing because you are so immersed in it aren't you? You think it makes sense. How do you get over that? Can you spot your own errors when it doesn't make sense?

STUDENT C I normally make myself when I'm writing an essay I won't read it then. I will turn off my computer off, go to bed and then the next morning I will read it through, even if it the day that it is due in, and then read it through with a fresh head so I don't necessarily know what I actually meant when I typed something.

GP Good. Do you also ever get a friend to read it?

STUDENT C No. The essay I did all the colour thing with, I got my friend to read it and she didn't really understand what it was about and didn't know the kind of mistakes I was looking for and I read it through again after she had read it and I thought she didn't notice this that and the other. I think it is quite difficult for somebody here at University-level to understand what you are writing. I think that that is the problem.

GP A lot of student use a friend to read it and they usually either try and choose somebody who is not doing their subject because they are not going to make any comment about the facts but they will be able to make comments about whether the sentence makes sense.

STUDENT C I get cross though when they sort of say that doesn't make sense and to me it does make sense I would rather just hand it in and have the lecturer just go and say 'I'm not too clear what you mean here' Because I get so cross when they say 'that doesn't make sense' and to me it's SO clear!

GP You do mini-plans, don't you?

STUDENT C Yes. I tend to write the title and say there are so and so components and then under those components I might split it into a few more bits and then just go through with each word and sort of write a paragraph about it.

GP Good. Do you keep referring to that mini-plan while you are writing? Or do you just not bother with it once you are writing?

STUDENT C I do, I do. Because if I am suddenly typing something and I think I could put that later on and I jot it down on the bit of paper – it's normally a scribbly bit of paper.

GP You use the computer to help you with proof-reading, spotting errors and that sort of thing. What about words that you have spelled correctly but you have used the wrong one?

STUDENT C Homo, homo, Homophones.

GP Oh, I wasn't going to use that to put you off!

STUDENT C One of the things which the dyslexic people gave me (*Software from DSA Access Centre assessment of technological needs)* was one which is supposed to spot homophones and I think it's the most useless thing that I have ever seen in my life and I can't get it to work. I think it is on TextHelp! I don't even like their spelling (checker) because it doesn't help you it just tells you where they are and then you have got to find them and it takes such a long time. I tend to read it through. There was like this parrot *(voice read-back facility)* thing which says it back to you but with the homophones you can't always pick it out so I normally I can see it better when I get the parrot to read it back to me but I got so fed up because it was taking such a long time for him to read it to me so I would rather do it for myself. But I do tend to have always a couple of homophone mistakes in my essays but I'm getting better at spotting them now when I read back through.

GP Anything else you want to tell me about writing essays that you think would be useful?

STUDENT C Can't really think of anything.

Transcription of interview with
Student D (Biology)
Interviewer: Geraldine A. Price

GP How did you get on doing a writing log while you were writing?

D I found it a tiny bit unnatural to begin with. The main thing was I'd have a roll going and then I would come up with an idea and start to put it down and then 'beep' and then I would break off but after a while though I became more used to it. Once I had finished making notes I found that by the actual time I was doing the essay it was a bit easier. What I actually did was use a couple of mini-speakers and I put those by the tape recorder because I found the ear-phones were getting in the way while I was physically writing it and I kept knocking the tape recorder on the floor so I decided to do that and it became a lot less distracting and that was the way I adapted to that. But overall it wasn't too bad after a while, after about 40 minutes of doing it, or so.

GP This whole idea of the writing log in the research project is designed to document your activities as you go through writing an assignment. From your point of view, knowing all the things that it asks you to think about as you are doing the writing log, was it an accurate list of the sort of activities that you usually undertake when you write an essay, right from the beginning from when you are searching for information, to drafting it, to proof-reading it. Or was there something that was left out that you usually do?

D Shall I first tackle the actual categories and then talk about the physical parts of the essay (parts of the process). I found the categories were by and large very good but I did find that beep seemed to go when you were doing something which wasn't part of the actual theme for example, I'd been writing continuously and then the brief moment I looked at my outline then the beeps went. Then again over the course of it that would have been equalled out by genuine ones so that isn't too much of a criticism – I shouldn't really bring that up as a scientist! I would say that there should have been a box to fill out for web-based research because, depending upon the course you do, that can play a big part in it. Certainly in the essay I wrote I used the web quite considerably. Normally I don't but this particular one relied a lot on UN statistics and they are all available on-line so I had to do that but I imagine that people doing Law or Medicine and Nursing would also be people who use the web a lot. And there is a difference between looking in a book and looking on the web with the web probably providing much more opportunity for dazed, blank stares. I assume the 'unrelated' box was a bit confusing because I generally tended to put down day-dreaming and reaching for a biscuit but I'm not sure how valid that criticism would be because it would be a bit superfluous to have separate categories of indolence that … so one thing I did find that I never actually put down, well I did put it in briefly, was 'making a neat copy'. If you have been compiling your notes on the computer and then when you're writing the text you are really re-arranging the text into a cogent order so making a neat copy is printing

and moving the figures around because it's very rare for you to be allowed to hand in a hand-written essay so that one was a bit confusing. It could have been replaced with perhaps a separate category of proofreading sort of computer-based proofreading. I'm not quite sure how you would actually phrase it. I did find the layout quite good because it was large and fairly easy to find out what you wanted, especially after you'd done a few sheets. I did find the page number (identify your page number) a bit difficult to do because I was jumping in and out of my text and it was expanding from about two and half pages of typed notes to four and half by the end of the essay but at any one point I would be in a different part so there was no real reason to put them down.

GP Could I ask you – you talked there about getting web-based information as opposed to getting information from books. Which do you prefer or do you not have a preference?

D I have to say that although getting information on the web generally is more fun, it takes longer and the information is generally of a lowered quality and there is certainly very little of the web which is peer-reviewed. I mean, on-line databases are fine but aside from that any fool can write stuff, e.g. in another essay I did I found another reference a lecturer had supplied was a sort of stealth creationist page published in an american university which used a lot of pseudo-science to argue its case but of course it seemed very convincing and it had a title which seemed genuine – it was peer-reviewed, admittedly by people who did not have the best interests of science at heart but it seemed genuine enough. It's only when you actually read the 13 page article that it turned out to be very bad science and its suppositions to be mathematically wrong and biologically wrong.

GP So web-based stuff could be misleading for students.

D Certainly. Also the act of searching can waste an awful lot of time because you often have to, say if you are researching for something about stomata and transpiration, you'd end up searching first under those but then you would have to specify maybe blue-light sensitivity or AVA signalling pathway and you end up having a lot of, unless you have an intelligent search-engine where you can put 'and', 'or' or 'not' these sort of operations on it, it can take ages to find useful information and then you've got the added doubt of the validity of it.

GP Would I be correct in saying that you prefer books and journals, chapters from books and journals, because the source of information is more robust or is it because it's easier to actually read from a book page than from a web page?

D I'd say both in actual fact. The web always makes me suspicious – about the only web site I would trust is well UN-based ones, UNESCO, UNEF and that sort of thing, those are OK and databases IN Gene and that sort of thing but everything else I have a hearty septicism (scepticism) of. With books you can be fairly confident if you are doing an essay on some aspect of physiology and you get a book on physiology out of the library you can be fairly confident of getting at least a paragraph out of it and you can go to the end of the chapter or the end of the book and look in their bibliography because they will have referenced it properly and then you

can go through the journal or book tree until you find something which is more relevant. Whereas on the internet you find a page and unless it is very well referenced with hypertext links you will find a bit of information that then is an isolated piece of information which you can't then go on from. So it's of limited use.

GP Do you read articles, web information, on screen or do you print it out? Which do you prefer?>

D I prefer printing it out but that costs a fortune so I end up reading it off the screen but reading it off the screen is a bit hard on the eyes and there is a great tendency to skip lines and only skim-read it and not read it with any quality. The general way I'd go through a journal, which is where I get most of most of my er, where I do most of my research from because I'm in the 3rd year, I generally photocopy them and highlight the areas because only 5-6 lines are generally relevant anyway but you have to really skim through them to find the relevant part, so if you're taking it off the screen it's very difficult to find the bits which are relevant, even if you are just skimming through, you seem to be able to skim faster and of a higher quality if it's from written page.

GP A lot of people have said that. This writing log actually goes through the traditional way of going through the writing process. Do you think that this log which I will see is a true reflection of the way you usually tackle the writing process?

D I have to admit that writing log did keep me in one place for longer – I mean while the tape was going I was less inclined to get up and walk around the room and stare out of the window to begin with because of the physical constraint of having a headphones on and because I didn't want to have the tape going on for ever. Also I didn't want to end up looking out of the window or reaching for a biscuit, this sort of thing because then I would end up going 'unrelated', 'unrelated', 'unrelated', so I ended up concentrating slightly more than I would usually so I probably go the essay done a lot quicker than I normally do but I think that is really unavoidable because there is no other way of doing this unless you are in a lab or somewhere and people were watching you but that would raise another issue of stress.

GP When were you were..... I have no picture of you writing the essay and tackling it. Could you just tell me a little bit about how you go about things? So e.g. you've been given a number of essay titles, you've chosen the one you want, from that moment on what do you do to get towards handing that essay in?

D What I generally do is look at the criteria, they give you information in the booklet – this is obviously for assessed essays. In the course booklet they generally give you some pointers of what they want. Sometimes it is very vague, more often you're given very precise instructions, and um I would generally go about finding out. Well I generally first, after I've done that, I look at the essay title and highlight the important words in it and also the sort of functional words, like discuss or critically evaluate and then I find it easier to then sort of it make it, it leads to the generation of a plan almost by just doing that. I mean if I was in an exam room I would write a bullet-pointed plan from my background knowledge. If I'm in my room

and it isn't too close to the deadline, I would generally create a plan almost as I'm going along. I would do my notes and sort of structure my notes into a rough order in which I want to put them and put little linking bits like this bit relates to that and stuff like that. I'd also occasionally print out the odd page and then annotate that and read it carefully. I sometimes do proofreading even when I'm engaged in making notes and doing the initial research. Certainly in reference particularly to this essay it was left extremely vague. You were just meant to do an essay on a predetermined topic which you had done a poster presentation of in front of the year. So as mine had been on the UN convention of biological, um biodiversity I did a particular aspect of that and just did a descriptive essay with a bit of discussion and a look at the future. But normally I would have given a bit more of a clear idea so it was a bit of an unusual essay in that respect because a lot of the research had been done two week's previous and I went back to that research but of course the pages I had printed out and they were all highlighted so I could go through them fairly quickly even though it was on, it was on a different title. A Lot of the information followed directly across.

GP So in a sense, this one is a slightly different essay, but in a sense you will have an essay title and then you will go to do your research and you will find out information and do you make notes as you find out information – you told me sometimes from the web and sometimes from books journal articles, you highlight information that you think is important for the essay. So you gather together a set of notes do you?

D Yes

GP What do you do with those notes, once you have got all of those notes? Do you have masses of notes sometimes?

D Well yes, I do sometimes but um what I generally do when I finish going through an article while it's still fresh in my head after it I go through it and highlight. I sort of read a paragraph I highlight that paragraph and then I go. I then go back to it and make notes on the computer about the particular bits and when I'm doing that I'm often converting it into my phrases and I find that that avoids the trap of plagiarism because I can re-word it as I put it in for my notes and then following that I put in the reference so that also saves me time at the end because I can just cut and paste all my references into my bibliography at the end.

GP So your notes develop on screen as you go on.

D Yea, that's one thing I've found because beforehand I used to make them on paper and then I would end up transcribing an awful lot of what I had on paper directly onto the screen so I decided in the end to just go directly onto the screen ongoing.

GP You now've got this computer-generated, you've generated some notes onto the computer from all of the various sources, do you print those out before you start writing or do you have them on screen?

D Generally I print them out because I find it difficult to organise my thoughts when it's just up on screen. I generally get a pencil out and go through it and change bits and ink them and sometimes I even write a complete page of text, pretty much, in the margin, linking everything together and then I'll print that up, fiddle with that on screen for a while

and then often print it out again and go through. So it generally I'm doing an awful lot of proof-reading over the course of the essay that it is not always proof-reading in the sense of looking through for errors or checking grammar but I am re-iterating each time.

GP Could it be that sometimes you are changing words and phrases when you are looking through things?

D Often. I spot those.

GP Now I'm going to call that editing as opposed to proofreading which will be just spotting the spelling mistakes and punctuation. The only reason I'm saying that is because with the data I'm splitting it up between proofreading and editing. That's why I just wanted to check with you. You mentioned that you make a plan quite early on. Do you, therefore, when you write your notes onto screen, do you have that plan in mind? I'm trying to get the picture of I've got these journal articles, I've highlighted; I've put them into my own words on screen; I've done a print out; I may do some shuffling around annotated notes for myself and then I can go back onto the computer.

D I've generally got a sort of small scrappy bit of A4 which I've written the title on and sort of really rough plan and the highlighting of the sort of action and subject words of the essay. That's just an aid to memory so I don't end up when I'm actually taking notes taking superfluous notes. Well with any subject you're going to end up having information which only partially relevant. It's very rare to find a complete review on exactly your essay topic – that does occasionally happens. But then that isn't always good because you end up not bringing forward your ideas so much as regurgitating some other reflective scientist's.

GP You mentioned that you did have quite a number of un-related markings on your writing log. Did that surprise you that you spent time that was not related specifically to the essay or were you aware of that anyway as your general work pattern?

D Well, I've always been aware of taking a brief gap. I find the attention span sort of is, I've heard it said that it's very much like a wave, it sort of rises and it falls later on. I imagine an awful lot of these breaks are due to um, um I often ponder whether the actual strain of thinking uses up an awful lot of resources and it's a way of internal buffering and in actual fact you are processing stuff in the background but you are not technically conscious of it. Um, a bit like people tend to forget things when they have got things in their minds, probably due to the fact that they are, I think I remember rightly I was reading about the temporal lobe resources are overloaded and you forget about temporarily. Um so I imagine that it's a sort of down time which is unavoidable and I don't think anyone works 100% for any given time period there is always a few seconds when they glance up or when they are just stare blankly at the page for a few seconds.

GP Some students have said they have been surprised by what % of their time seems to be taken up on the 'unrelated' and they weren't aware that they were just, as you say could have been re-charging batteries, but they thought, if anyone had asked them, they would have said, I spent all my

time on task but I was saying to them that it might not always be on task it may be that they are taking a breather, just like you said.

D I have actually found that I have got an awful lot better at concentrating - I was actually surprised at how little I was actually doing that. That is partly because I have started doing T'chi Kung every night which is a form moving meditation. Because I am spending perhaps half a night meditating or breathing exercises I think I might have become slightly more disciplined in my focus on work. And I've also done Tai Chi and stuff for a number of years so I think it has in actual fact – that is has certainly increased my co-ordination – I used to be a bit of a klutz but now I can stand on one leg and sort of kick and stuff. I often stand on one leg for about 10 mins doing kicks. Although I've got slightly out of shape recently because of doing my thesis. I haven't really done that much. Um, I have found that does improve things. I've often thought that with dyslexics especially sort of physical control seems to help very much in the mental aspect. Um, because I find an awful lot at school they teach you sports but they don't often teach you fine control when you go through a martial arts form it's very ordered, very disciplined, very precise. Also it's extremely calming and you're not distracted by too much. You get a thought and you let it go through you, you don't actually fixate on the thing and end up, your mind doesn't end up doing the hamster in a cage thing because you just end up going where you want to, because you're not paying too much attention to it, I know that sounds counter-intuitive but er that's the best way I can describe it really.

GP That's very interesting. Because you are in your final year, obviously you have had to do this sort of writing before in your course. Do you think you were prepared for this type of writing before you came to University or in your first year?

D Well, um in parts. I was lucky enough to go to a fairly good school for my 'A' levels and they did do a lot of essay preparation and they made us do mock exams quite frequently. But I find with 'A' level structure, the terminal courses are very much like uni in quite long essays, sort of 4 sides, you may be doing 3 essays over the course of 2 hours. Um, but with modular courses you often get an element of short answer in there which is very easy if you read through your Oxbow-Lakes and so on you end up knowing all the examples of that and you can reel it off and if you only have to regurgitate 50 words it's almost impossible not to get 100% in it. You often get that and then you might have an essay component so the essay won't be very long so you are never asked for an enormous depth of knowledge you are asked for a specific bite-sized chunks but it's never that rigorous and you come to uni and they expect you to write an essay on calcium signalling and it's expected to be 5 pages long and you would have very well reasoned things and you are meant to actually pass criticism on it which you're not asked to do at 'A' at all really, well of course that depends but you can get away with vast amounts of rote learning and when you come to uni you find out that you have to critique it and really understand it and that does strike me as quite a big step up from 'A' levels. Talking to people who did them a long time back, it seems that it wasn't quite so much of a step up that um I'm not sure how

the educational system really is pushing people, whether it's towards actual understanding or attainment of bits of knowledge.

GP What part of essay writing do you find easy or the easiest?

D Probably the research. I actually quite enjoy finding out about stuff. Um, I find the actual getting down to it and structuring it and making sure that you haven't made a fool out of yourself by arguing something daft, that I always find quite stressful in a way, not terribly stressful because obviously I've done it loads of time, but there's always the ideas that you should have done a tiny bit more. Whereas in the research you are just finding out nice new bits of information, that's different from that, and you think oh, this is quite cool. Whereas when you are actually writing it you begin to think should have I included this; should I have included that; is it long enough; is it too long; does it actually make sense to someone reading it from the outside and yea that's probably about that.

GP You mentioned in your thesis and I would like you to mention it on tape as well in a moment but actually using words, do you find it difficult in your writing when you suddenly think what is the word I want? Or do you never have that sort of problem?

D I don't have it terribly much. I think that it is mainly because both my parents are quite literate and they talk quite a lot, and we also have discussions around the table and I'm often very good at conversation of getting the right word but for some reason when I'm writing an essay I do find that I have a tendency of putting bizarre, Freudian wordings. In my thesis at one point I had lowered 'humility' rather than 'humidity' which caused amusement which I suppose is better than erratic, sorry erotic, rather than erratic mice. Still very much the same thing and it can cause a bit of a problem.

GP The sort of marks that you have got so far for your essays, have you been satisfied that they reflect the effort that you have put into them?

D Well in a perverse way I get my highest marks when I do them right at the last minute. I have pulled myself up to a 'First' average this year. At the moment it's a 2:1. I'm trying to push it up even higher because I had slightly dodgy second year um so I have had some very good returns on my marking. It's quite odd in some ways. If I'm very pressured on time, I wang off very concise, well structured work and if I spend too long on it I seem not to work very efficiently and create a fairly wandering essay. So I have found the same on tests and papers. There was one I managed to get 68 on and I wrote, let's see how many, I wrote 3 and half sides and the rest of the year wrote pretty much about 15 and I got that mark. So I can create very, very precise stuff but I seemingly can only do that when I am pressured on time but that also creates stress and it isn't particularly a good habit. I always used to find that I had a problem writing essays in exams. I certainly had last year partly because in the 1st year the structure is short answer section, 2 sets of essays – you'd have about 45 mins to do each essay and then 30 mins to do the short answer bit which is quite similar to modular 'A' courses but in the 2nd year you are suddenly expected to write 2 essays in 2 hours which means an hour long essay is expected to be about 5/6 sides, and have quite a depth of knowledge and

refer to papers and so on. The step up from that I found a bit of a shock and um found it quite difficult to actually get into the swing of writing that type of essay, um and I've only really got it this year. And my marks jumped by about 15% when I realised that and that mainly came about by sort of creating a proper structured plan at the beginning and also splitting the essay up into manageable chunks whereas beforehand I generally knew lots about my subject, because I enjoy my subject a lot, but it would come out as a word soup and it wouldn't make much sense whereas now I've got a few strategies under my belt to actually do things properly.

GP So you do use your plan all the way through then to help you as you are writing?

D Yes very much so especially in exam essays. I probably find with ones I've got more time on I generally refer to it slightly less in actual fact but that be the reason that the ones I have more time on I do less well on. Perhaps I end up going up academic rabbit-holes, finding something terribly interesting, talking about it quite a lot but it might not be that relevant.

GP When you are doing things on screen, not in exams obviously, and you come to the proof-reading part, and you are checking for spelling errors, grammar errors, punctuation, can you spot your own mistakes?

D Sometimes, I can spot most of them but a number do get through even on things that I have spent time checking through. On my thesis I had that one typo I mentioned earlier and I didn't put $C0_2$ into subscript on quite a few occasions, um but those were the only typos I didn't get. But I did have more to begin with being dyslexic. It does take a little while to ferret them out so I tend to be fairly careful when I am initially writing my notes so that when I refer to my notes they are correct and I don't end up copying an error.

GP Do you use the spelling checker on the machine to help you?

D Yes I do. Because I generally find there might be a mistake very sentence or every other sentence so generally small things, like doubling consonants after um –ing and that sort of thing. Um I don't use grammar checkers because I find they don't usually work – they create gibberish sentences which ….. I don't know why but some people find them useful but I have never found that they ever make any sense with my sentences.

GP I think it depends on your own level of writing and also your knowledge of grammar because they use a very particular grammar system which I certainly find an unusual system and I would end up with sentences with which I was not happy. So I'm like you I disregard the grammar checker.

Transcription of Interview

Interviewer: Geraldine A. Price
Interviewee: Student E

GP This is an interview with Howard Stone who is a third year Mechanical Engineering Student.
How did you get on with the writing log?

E I found the writing log quite a constraint on the item of work. But as I had to plan what I was actually going to schedule in to do the work and also felt as if I was in an exam because of the tape going off all the time I felt as if I was pressured to rush through the work.

GP Do you mean that you planned it so that you could be in the right sort of place and use the machine, the tape recording machine?

E Yes, I used it when I was back in my room rather than down at University. So I had everything laid out in front of me, nice large table with tape running and everything else I needed close by.

GP And usually you wouldn't do that, you would go to the Library and work in the Library?

E Sometimes I would work in the Library, sometimes back in my room. I vary the place I work quite evenly and it just depends on where I am at the time. I spend small chunks of time on an item of work rather than quite a long time, so I pick bits up as I go round.

GP Fine. The Diary was designed to document your activity while you were writing the assignment. From your point of view, did it actually document the sort of thing that you usually do, or was there anything left out that you do?

E The Log turned out to be very fair with my time as in the normal process of going through this to write an assignment . The one thing that might have been useful would be searching on the Internet for information, as I could use some references from the Internet. Otherwise no allocation for that in the Log.

GP Did you put it under anything specifically?

E I actually left it out and then printed out the information from the Internet and then used it as a reference material I might have picked up from the library and read through it and used it that way.

GP Right, lovely, thank you. Did the Writing Log show you anything about the writing process itself or how you carry out the writing process?

E Before starting I had to sit down and look at the descriptions that you gave me and actually decide which part of the assignment I would assign to which part of the actual log. So some would have been reading the background notes, whether it was, was it reading my notes, was it reading the reference from the Internet, I had to sit down and structure that myself; so, yes, to an extent it did, not change the process I'll go through but it just segregated it to certain chunks so either the preparation then going on to the...

GP So it made you more conscious?

E Yes, it made me more conscious of which one I would have to complete before starting the next, whereas sometimes they might merge over each other and in the parts.

GP Yes, so did it interfere with your usual pattern of working, in that, you know, you said, "well, I have to think about.."

E What, with regards to the process?

GP Yes
E No, it didn't. Because I still did the same process as I normally would - getting the research and then starting on it, so...
GP That's fine.
E Rather than starting again then trying
GP Yes
E Reference
GP Were there any surprises for you during that process that you weren't expecting?
E How many times I put a circle round "writing my own notes". I actually used that one quite a lot.
GP So you do that quite a lot?
E Yes
GP You are conscious of that?
E No, no, not before, because I would spend short chunks of time in different places working on it, I wouldn't sort of really sit there and look at something for a period of time.
GP Yes. Did it confirm what you've always thought about yourself as a writer and how you go about the process?
E In what respect? To confirm...?
GP Did you think that you spent the amount of time on each of those parts?
E It wasn't the time spent on each part, but it was the time overall. When I looked at the end of the tape-I went round the tape, it was four or five times, so to spend five hours on an assignment when the lecturer talks about it the lecture and he's saying some people might spend half an hour, at maximum two hours and the grades might still be the same, I look at it and think, well I've always spent more time on things, but I've never really added up how much time I've spent on a certain item *(essay)*, so
GP That was quite useful..
E It did make me aware of how much time I spend on it, yes, as a whole
GP Yes, that could help you in future for planning
E Yes, definitely, yes
GP That was to do with the Log activity, this is just about writing in general. Have you ever had to write in the form that you did for that particular essay? Have you ever had to write like that before?
E Yes, I have had to use that form as a discussional piece of work where you were trying to persuade the reader to your views.
GP Yes. Do you think that the course, your Mechanical Engineering course, prepared you for this type of writing and if so, how did they do it?
E Er, no, the course doesn't prepare you for this kind of writing, because it's a technology-based course, it's more of a technology-based writing where you're always writing in the third person, rather than in a persuasive piece of writing you might try to use more personal background, more "I's" and description about yourself, rather than just a piece of work, so even though it was still written in the third person type of way I would still try to put the person's view across.
GP Yes. Did you find that hard, where you are constrained by "I must use the third person and formal language but I want my own ideas to come across"?
E Not now. 'cause I've been doing it for a little while, so I'm starting to get used to...when I first started it it was an absolute nightmare 'cause I was..only

'cause construct a sentence and the only thing I could put in would be "I", still put myself, but unfortunately you can't do that, so in the past I had real trouble to reconstruct it , to leave that out. But now I've been used to doing it, so...

GP So practice helped?

E Yes,yes, a year's worth of writing up the reports.

GP Yes. In what ways were this assignment similar or different from other kinds of writing that you have undertaken, here at University?

E It's different in the persuasive manner of it rather than being a technical report which is broken down into your research, findings, your conclusions, your analysis of results, whereas this item of work was just a quite simple introduction and then two questions with arguments and then final conclusions, so there wasn't really any kind of analytical figures to talk about, which there usually is in an engineering-based assignment.

GP Do you find persuasive writing easier or more difficult than the technical?

E I would say, from my past, the persuasive writing is much easier because that's the way I was brought up at school, it's always creative writing rather than technical writing, so yes, I would find the persuasive side would be easier to write if I didn't have the constraints of the technical writing.

GP Right. What did you find was the easiest part of doing the whole essay?

E The easiest part is coming up with the answers to the first question which I could base on life experiences, because of my work I did before coming to university; whereas a lot of the other people on the course haven't got that experience to draw from. I know some of them found it quite hard to find justification for their answers. So I found that part quite easy.

GP Yes. That's good.
Now, would you like to tell me what the essay was about.

E It was about finance and accountancy for engineers. Two questions were set by the lecturer: one was "How is there a relationship between Accountants and Engineers?" and the second question was "Should engineers be taught Accountancy in their engineering degrees?" and we had to show justification for the first question, how we see it in industry, which I'm lucky that I could do and then on the second question we had to give justifications, yes or no; well I split it into yes or no, arguments and then draw them together. So that, in essence was what I really did for the assignment really, so...

GP And, what did you come up with, what ideas did you...?

E I came up with, for the first part, question one, the relationship between engineers and accountants in industry is amicable, which I thought was a good word to use, because at time it is stressed, where the engineer has to go to the accountant and try and get money from them; the accountants want to hold the purse strings and not give the engineer the money. So I just described it as being amicable. And then, in the second question, which was a "yes or no", I gave it a "yes" because I think engineers should be well rounded people that are able to do more or less everything that will ever be thrown at them once in industry. So to have the knowledge and background of accountancy is definitely an advantage. And engineering and industry needs technology-based management and to have management that have already got accountancy knowledge is going to be an advantage in the long run for society. So, yes, I do think it does.

GP Would you think that engineers should have a formal qualification, therefore, in some aspects of accountancy or is that going too far?

E Looking at qualifications from your varied background you could try to get them a qualification in accountancy at a low level, maybe a book keeping one, maybe an RSA, or something like that, which is quite simple to do, a relatively quick item of work; but the University would much rather have it as a part of the degree rather than additional qualifications on the side.

GP Do you think that's good, to integrate?

E Yes, definitely. It's a shame there isn't any management options, or accountancy options in the third year because I think a few people would take them because they know that, once in industry, they are going to have to do it, so they might as well make themselves better at it. So that might be something that I might have to do.

GP So your essay, overall, agreed with the statement?

E Yes, agrees with ,yes, because the engineering degree is set up from a paper written by engineering Council, SARTOR, and in that it states an engineer must have an awareness of accountancy. So, yes, it should be done

GP Yes. When you undertook the Writing Log, how did you divide up your time?

E Firstly, I read all the information you gave me then found out as much information as I could, backgroundwise, but not really reading it, I was just trying to find background material. So like looking on the Internet and things.

GP So that was just gathering?

E That was gathering information and then...

GP Anything that could be useful.

E Yes, could be useful I got and then stapled them together, left it on the side and then I'd allocate a morning to working on it, turn the tape on and then sit there and start. So it was really, kind of, scheduling the chunk of time when I could sit there and do it rather than my normal flitting about, doing lots of things at once.

GP Yes. So when you've gathered all of that information that you think might be useful and you put it all together and then you decide to use, to go through it, what do you do when you go through it?

E I try to find either a key word, by just skim-reading it, which is something that Gail went through with me a little while ago. So I've started to have a go at doing that, trying to find a key word or just a phrase that I might be able to use as a part of a paragraph. So there might be a sentence which I think to myself "that might be useful, I can use that sentence, reconstruct it and then use that for my paragraph". So I try to find key points as I go through.

GP OK. Have you any sense- I shouldn't have shown you the graph. Have you any sense of which took you the longest?

E That's quite easy-typing it in. That always takes me the longest. Because it was a typed assignment rather than a hand-written assignment I can..., I don't like to hand-write something first, I'd much rather do my brainstorms and then go to the computer and start to construct around the brainstorms, well put the bullet points in, I think, construct around the bullet points for each paragraph. That's what I'd much rather do. So it was just the writing of it once I started.

GP Yes. And when you say "writing of it", that sort of .. tell me how you go about the writing of it.

E Right. So, from my brainstorms go to the computer and then put in my bullet points of my brainstorm. And then from each bullet point I will then start to expand around it and actually try to incorporate the information I've got in the bullet point as well which, I think, hopefully, should be shown by all the

"saves" I did on all the files. You can see how I picked up a bullet point; I then started to expand round it and then gradually moved on – it's a question of going through them.

GP Yes. What do you do with your notes when you're at this point when you're writing things up? What do you do with the notes? Do you forget them?

E No, no I will always leave them…

GP They're beside you?

E They're very close to me, so if I'm looking at the brainstorm I might think to myself, right, I can actually draw a line between that point and this point and then I will try to put something into the paragraph on the computer that will relate one concept with another concept from the same brainstorm. So that's it for the assignment.

GP Yes, I see. What about making notes from books, is that applicable?

E I would much rather go and photocopy them and then take them away and then I would highlight the sections that I think are relevant, because for me to sit there and hand write something out; to read it and then hand write it out would take me such a long time. It's not really feasible; it's easier just to photocopy it and then…

GP Yes, that's fine.

E …highlight the relevant bits.

GP Getting your ideas into sentences and paragrapE-does that take you a long time?

E A paragraph wouldn't take me much time to do, 'cause I can use that from my brainstorm, but the actual construction of the sentences to go to paragraph will take the time. That's where it's actually…

GP So, moving from bullet points to sentences, that's what takes you the time.

E Yes. I know that, if I try to add bullet points within the paragraph or four or five sentences that will actually describe what the bullet point is trying to say. So, it is a time, it is a lengthy operation going from the bullet point to the final paragraph. It does take a bit of thoguht.

GP Yes. And in actual fact your graph, the data shows that writing, the writing part- the composing bit of it took you the greatest chunk of time. So, there were no surprises there for you, really?

E No.

GP How do you find the reading around the essay, you know, do you …talk to me a little about that. Do you find choosing the best books difficult, do you find selecting the best bits for your essay difficult, from the books and the Web and everything?

E I find there's a lot of information out there to get, especially with the Internet. Far too much information. So, it is difficult to find a relevant item of general paper or a relevant item of information from the Internet, but once I am searching I will try and grab everything that I can and then I will sift through it quite quickly. If it hasn't got something that I think might be relevant, if it hasn't got a key word or a phrase that I might recognise - it's really just the words I scan for. So, because it was related to finance and accountancy in engineering I would put that into the search engine and everything that didn't have those ones in I would throw away, then…

GP Do you ever scan text and articles into your own computer and then use, search key words on the computer in the document?

E No.

GP Right.

E There is Adobe Acrobat, the latest version has brought out a "find" function, but some of the older files that were made for Acrobat, you can't search, it's only the more modern ones – journals papers you can.

GP Do you find it difficult to select, once you've got an article or something on the Web that you think is going to be appropriate, do you find it difficult to choose whether some information is relevant or not to your particular essay?

E No. I don't think so. I think I just find, once I've found an article that is relevant, I will then just selectively pull out the parts, whether they're together, not together, different pages I will pull out the parts I think are relevant. Whether it is just a concept or a different journal paper or whether it is sentence I draw it out.

GP So…

E I don't get mixed up in the rest of it around the outside.

GP Yes.

E If it's not relevant, then get rid of it.

GP What do you think helps you to do that? That's quite a good skill that you obviously have developed. What do you think, in your writing process, helps you to be able to do that?

E I don't know, I don't know really. I suppose it's just my natural-that's the way I naturally do it.

GP Do you think the-I don't want to suggest things-but do you think doing your mind map, your brain storm first…

E Oh definitely focuses on what I actually need to find as a piece of information. Yes, because-I think you've got mind maps as well-from those you can see, right, well it's a bit of information on SARTOR, so then I will go and find SARTOR. So it helps you to focus in on what you need, rather than a bit of information that might relate to engineering, you actually state what you need to find.

GP Yes. So if you didn't do the brain storm and the mind maps…?

E Well, it might take me a long time to go through it all, definitely.

GP Yes. Do you have any problems when different authors give you conflicting information? You know, what they're saying conflicts with another article. Do you find that difficult?

E I haven't really come across that, yet.

GP Fine.

E I haven't gone into anything to that extent that I find two authors that contradict each other.

GP Fine, fine.

E But, if they did, I would read both of them and then draw my own conclusions on what they say. Not make my own answers but I would then say "this one come up with this, this one come up with this". From what I see, I think it's X, rather than stating one of those.

GP So the reading and getting that information and understanding it isn't a problem for you?

E No. The reading part is. It might take me a little bit of time to read it, but actually finding the information and taking out what I need

GP So you don't make notes from journals or books?

E No. I photocopy the highlights.

GP What if you've got something that you think, "this would be a good thing to quote from this particular article", how do you organise yourself with that sort of thing? Do you copy it down or do you, what do you do?

E If it's out of a book in the library I photocopy it, and then re-type it. If it was electronic, which I have a tendency to go towards, because once something's electronic, I can then cut and paste it into so many different applications, I find it a lot quicker. So I will cut and paste it into the assignment and then I will place it underneath where I am typing, so I can see it at the same time as typing what I have on top and then, once I have typed around that part or used the part of that quote from their context I will delete what it was and then get on with the rest of it. So, that's why I like using the Internet, 'cause I can find things electronically and it makes it far easier.

GP Yes. Do you keep quite close to the words of the person that you're reading from the article or the Internet; would you try and change the words; or do you find that really difficult?

E I would much rather try and write around what they have actually written or, yes, they might have a certain statement in a certain way, so I might use that statement but I wouldn't use their exact quote from it. I wouldn't just cut and paste it. I would actually, yes...

GP And, do you find that hard?

E No, not really.

GP Does it take you time to get your sentence together?

E Yes, well, yes it will take me time to construct it so I was trying to put across their point in my way. If you see what I mean, to actually use their theory in my fashion. That will take me a little bit of time, but I can see how they've applied it I can then feed off their information, but not...

GP So, having their example is quite useful for you?

E Yes, very useful, yes.

GP I think I know the answers to these, but I've got to have it on tape. Do you use bullet points?

E Oh yes.

GP Do you use sub headings?

E Try to.

GP Could you write without bullet points and sub headings?

E No, not really, because I think a bullet point is, in some ways, similar to a picture. Because you have one word or two or three words that go with that bullet point you can then expand around it in your own head rather than actually being told – what has to be a bullet point.

GP Yes. It seems to me that I'd like to tease out where you do your planning, because you do different types of planning, don't you? You get your essay title, then you start some planning there.

E Yes, brain storming.

GP So that's the brain storm.

E Read it two or three times, so I fully understand it, then I might leave it overnight and then ...I'm a great thinker. When I wake up in the morning I wake up an hour earlier than I actually get out of bed and I spend an hour thinking about what I'm going to do in the day; think about the assignments, how I'm going to attack them and then I'll go back and then have a go at the brain storm, get down as much information as possible about how I want it to go, how I want it to be structured. Maybe, as a first hit, just go straight into

just, kind of headings and say, "right, heading one is going to be my introduction, then I'm going to have my question one, question two" So, in my head I'll already have the essay or assignment, some kind of structure inside my head and then I would feed that either from my brain storm or into my brain storm and then I would do a separate brain storm for each sub heading as I went through and then I would then use that to feed to my paragrapE. On the assignment I..brain stormed, wrote some of it and then I went and found the research on the SARTOR part because I didn't want to break my flow. I'd already thought of stuff I wanted to put into the..into question one, so I thought, "right, let's get that in there and then I can go away and do the rest of the research"; because I'd much rather flip and change between my time rather than solely sticking to something. Solely write it I'd much rather write some and then be happy with that and then go away to get the SARTOR research and come back to it.

GP And, when you do your planning in this very first stage, it's not just planning what needs to be said, you also do something else, don't you, you plan where you're going to get the information?

E Yes, try to. Try to. So, if it's... some parts of our course were quite fundamental and some things don't change. We have always been taught about Newton's Second Law, which came out in 1535-it doesn't change, so to get to information that old you have to go to a book in the library rather than get it off the Internet. Well, you could get it off the Internet, but it would be hard to find. So, more up to date things, like, for example, SARTOR, I do have to go the Internet for it, 'cause I wouldn't have much chance...oh, yes, I could do an inter-library loan, but the hassle of doing that-frustrating, isn't it.

GP Yes, fine. What's it like when you've got to actually start writing your essay? You don't hand write at all, you put it straight onto computer?

E Yes.

GP Right.

E It's daunting, 'cause you'll sit there looking at a white screen and, how do you physically start? I think that might be where the brain storms really help, because I can then look at my heading that I've put in the introduction, I look at that. I've got my little brain storm to go with it. I then translate that into my bullet points say like into the computer, and then I've actually got something there to look at in front of me to give myself a lot of inspiration. Because, to look at a white screen I find excessively daunting. So, to go straight in and hit it with the bullet points, I find works really well.

GP Yes. Do you use, therefore, the bullet points...do you put the bullet points on screen to give you some idea straight away?

E Yes. To give me a starting position. So, it's off the blocks, that's it I'm ready to go now, I've got my bullets down, I'm ready to expand round them. If I need to find some research, I know when I've got to find it, 'cause that'll be there when I get to that bullet point.

GP Now I need to, sort of, have a picture of you. You're sitting there at the computer screen, you've got...your bullet points are up on screen. What are you surrounded by? Do you have textbooks, do you have your highlighted sections of text? What does it look like?

E I have two separate tables in my room. One for the computer to live on and one for...I might sit down and read books. So, on my computer desk I will try to have nothing apart from the actual computer itself than if I sit there and read

other bits. On the other table I will have my notes. So, I sit there, put the bullet points in and then, if I get stuck, to go back to the brain storms I will then wheel across in my chair, pick up the brain storm; have a look at it; remind myself of what I was actually trying to go for; put it back down again in the context of the rest of the information, rather than just the bullet points, 'cause the brain storm is all on one page; look at that; come back to it and then go on again. But I wouldn't have any books, I would only have photocopies of bits, I wouldn't have books open at certain pages, I would just photocopy those bits out.

GP Yes. You've got your brain storm which, to me seems quite a crucial part for you.

E Yes, definitely, yes.

GP Do you ever change it while you're writing?

E Yes.

GP Or is it set in stone right from the beginning. That's it. It drives me along.

E It's a working document, I add bits to it, I draw lines through it, I might highlight something, draw a box round something if I think I need to do more work on it, I need to expand on it a little bit. My brain storm-one word in the middle- scattering coming out then I have my sub-parts coming out. If I need to add more bits to it, draw lines between them, I always try to stick it in, 'cause in that way it's an official representation of the actual document I'm trying to go for.

GP Do you use any electronic mind-mapping systems software?

E I have got Inspirations, which I find very useful but at times quite limiting; because of the style it doesn't seem to come across as being a visually appealing software. So, I have observed Mind Manager, which I think comes across as being much more of a picture, rather than an actual diagram, which you get from Inspirations. Inspirations is more of a flow chart style diagram, but Mind Manager is more of an actual conceptual drawing or a conceptual picture of what is going on, rather than the flow chart or a diagram.

GP Fine. Do you spend any time editing your text? You've written the text, you've got sentences, you've got a paragraph. Now, I'm not talking about proof reading. So, editing and improving the words that you've written

E Yes, definitely, 'cause Word 2000 always comes up with "You've put this in the passive voice", "You haven't phrased it correctly". So then I think to myself "Right, can I sort the sentence round, do I need to add commas, do I need to put full stops in it?" So, yes, definitely.

GP Right.

E But I was trying not to for the actual... for the test I was trying to leave it until I'd got to the proof-reading stage. But, yes there was some points where I had to think about what I was trying to word, swap around for that.

GP Yes, that's fine. Do you have any proof-reading system? How do you proof-read your work?

E I have got TextHelp. I didn't use it for the assignment.

GP Fine.

E I just started to actually do it without the software. So, once I'd finished it I then printed it out, proof-read it straight afterwards, found some changes, went back and did those changes. I think that was actually marked on your files. I then left it overnight; I then proof-read it again the next morning, so there was a time left in between so it wasn't seeing the same things all the time. Proof-

read it again and then I think I left it till the afternoon and then had another go at it as well. And then that's the final copy I gave to you.

GP Yes. Now, can you spot your own errors?

E Yes.

GP Ah, good.

E You can spot your own errors, but then some things...there's...I just won't spot because it's not the spelling of the word, it's just simply the incorrect word that I put into things...

GP Yes.

E ...rather than the actual misspelling of a word.

GP Yes. So, when you're proof reading do you go through it word by word from the beginning of your text, paragraph by paragraph, or...how do you actually proof read?

E Try to proof read it as if I was the person marking it. So I start at the beginning, then read my way through it to the end.

GP Do you read it aloud or do you read it silently?

E Silently.

GP Yes, ok.

E Probably be better if I read it aloud.

GP Yes, it would...

E You would hear it as well.

GP Do you ever get a friend, girl friend to read it and say, you know, "this doesn't make sense, you've got some errors here... or do you not use a friend to help you to proof read?

E Bit of a touchy situation; tried to get my girlfriend to read them, 'cause I can see her English would be far better than mine, but we always end up fighting about it, so I try to limit her exposure to any of my work.

GP Is she irritated by your work or is it...?

E Yes, to an extent. You know I think she honestly completely *(irritated)*

E She must find it really frustrating, to actually read, because at times it's not flowing, it's not... it's patchy, it's not worded correctly, things are the wrong way round, you know. So yes, she does find it quite hard work, but we do fight about it quite a lot, because I want to say something in my way and she's telling me "no, you can't do that". So...yes.

GP Who wins?

E Who wins? Well, we don't. I take a passive retreat and I say "thank you very much, I shall go through those changes tomorrow", when inside I'm actually boiling. I leave it and then I go back through it and make the changes she's recommended.

GP Now, are there any other comments you want to make about writing essays that you think would be helpful, so that I can get into the mind of the dyslexic person, when you're writing?

E The main thing I've learned, over the last not necessarily few days, but over... from after the initial... after the assignment, is the advantages that can be made using text help, to hear the item of work. I actually went back through the assignment that I did for this item again with text help and now I am overwhelmed by how good I can actually make something , because I can hear it. So, yes, it really is excellent.

GP So, for you it is worth buying.

E Yes, definitely a big advantage. I've got a friend who's doing a PhD and he's dyslexic, but he won't use any software and every time he does something for his supervisor he has to double line it, double line print it, so his supervisor can go through and make corrections. I've been trying to explain to him that, through using a bit of software, you can sit there and listen to it, and it makes it so much easier to do. It really does. You can actually word things in the right way; you can teach it some of the quirks of engineering, things like millibar and just things I was teaching it the other day. So, I find it a really big help. The latest version is excellent; I find it really good. It's still not as flowing as a human being, but you can speed it up as if it was someone talking to you at quite a fast rate, which, I was actually speaking at a fast rate anyway, so...

GP Well, thank you very much, that's great.

End of transcription.

Transcription Student F
(MSc in SpLD Student)
29th May, 2002
Interviewer: G. A. Price

GP You have been saying that you have done lots of drafts and one of the things that you wanted to comment on was what happened while you were doing this essay because you were doing a writing log.

F I'm not quite sure if I always write this way. I do, to a certain degree, always do lots of revision. Whether this essay is even more revised than normal and if it is I don't know whether it is because the essay was difficult or because I was doing a writing log. The writing log did interrupt the flow somewhat.

GP That was the first question. Did it make any difference doing the writing log. The diary is designed to document your activity whilst writing the assignment. From your point of view did what you recorded document what you usually do when you are writing an essay or was there anything that was left out?

F There was one thing at the end where I put where it said 'changing text' it was that I had proof-read it and I was correcting the mistakes and I qualified that on the last few sheets and it's not just changing text but correcting them where I put the wrong word or misspelt something or I missed out a word and it didn't make sense or whatever, full stops, commas which I tend to lack putting in until the end.

GP Fine. So when you did the writing log it made you conscious of this whole writing process.

F Yes, it did. It made … and if you look at the log probably it makes sense. In the beginning, I'm doing more reading and more notes and then more writing and then more changing but you will find all the way through there are changes – every so often it's changing text, changing text.

GP That will be interesting. Were there any surprises? Things that you weren't expecting? Things that you thought oh! I didn't realise that I did that.

F No. I don't think so. I think on the whole I didn't, there aren't many instances where I wrote down 'thinking about the essay'. Because I tend to do that in the car, in the bath. So I'm cooking the tea and thinking about it in general so if I haven't got the diary there to be saying it so there's not many things where it says 'thinking about it'. I did all my reading first and then I took what I had read and had the books and made notes which I did log but I didn't log any reading so there aren't many things where it says 'reading reference' work.

GP How much time if you can give me an approximation, how much time do you think you spend on that sort of an essay with re-reading? Does that take you a long time?

F It takes a fair long time but no where near as long as writing. The writing the essay takes much longer than the reading for it. I also have problems where I read something and I think 'oh! That's good' and it gets stored in the back of my brain, comes out in my essay and then realise that I should reference that, where did it come from, I know that I read it. When I make

notes, I try to write where they came from but if it comes out of my brain from something that I have read so it's a bit harder to reference.

GP Yes, and of course when we are doing background reading to get us into the whole thing you are not necessarily at that very directed taking notes and making sure that you've got yourself organised in the same way.

F I'm also very disorganised and my note-taking isn't very good.

GP But does it work for you?

F I think so on the whole. My other essay I did the same sort of thing. But I had a much better idea of where I was going. I knew where I wanted to start off and I knew where I wanted to finish. On this essay it was a bit wooly and think it came out in the end.

GP Have you ever had to write anything like this before?

F Yes.

GP Do you think that this assignment was similar or different from other kinds of writing that you have had to undertake?

F It's similar to the last piece of writing that I had to do but I think I had less knowledge so it was harder even though it was less words, and I also think that less words is harder.

GP Why?

F Because you can't say all the things you want to say and you can only pick out the good things to say.

GP Do you find that difficult?

F Yes. And you'll find that if you look at the print-outs that I have done and you will have to sort of cut it out and there are big lines through things where I have had to cut things out but I have to go through that process where I have to put it all in and taking it out. I can't seem to get out first and then put it in.

GP For you in a sense the writing is coming to grips with all the new information and understanding it.

F Yes, and I also find that writing, and I found in my undergraduate degree, doing the writing I then understood the subject, rather than I understood the subject and then could write about it. I used the writing to take everything and then it came out with an understanding.

GP I think that happens for a lot of people and they prefer to do it that way. What do you find the easiest part of doing an essay if you think of the essay process as the background reading, reading and taking notes, getting down to the writing and the drafting, reviewing it, editing it and then proof-reading it? What of those do you find easiest?

F The reviewing and the editing because you have got it there and it is easier to put in things that you have missed and take out the rubbish. I find the getting started really, **really** difficult.

GP Have you got any strategies that you use to help yourself get started?

F I sort have developed this thing where I just write everything and since I have discovered Dragon *(voice-activated software)* I dictate everything and that does help because at least you have got something to move about the page and then 'well then, that's alright' and I do great chunks that I have read out of books. But then I do make sure that I know that they are read out of books and then I can change them. I put instead of writing notes from them, I'll write' that's a good idea' but as long as I indicate that it's from a book.

GP How do you do that?

F Different colours.

GP Your text is different colours?

F Yes it's very pretty. I have blue for writing; green for my notes; black for plagiarism and red for thing that I have to come back to, like referencing or something that I have put which I'm not quite sure of or that I have to check out in a book or whatever.

GP Good system. Can I ask you talk a little bit about the software, Dragon Dictate. How do you use it? Why is it helpful?

F I don't use it all the time. I use it when I have a blank page. When I can just splurt out ideas and splurt out things. But once I've got something there I don't find it easy to use to edit it, to go round the page. I think it's easier to type thing in. But I hope to get better at it.

GP That's interesting. So it's a good use of it right at the beginning when you are thinking quickly.

F Yes, you are thinking quickly, you're getting ideas down, you're... it's just a jumble and then it can be sorted. Whereas if you are using it to edit you've got to keep moving about the thing and you've got to tell it where to go and what to do and where to put things.

GP So it's quicker to actually do yourself at that stage? Because presumably you've got an idea, a little map in your mind of where things are?

F Sort of, sort of. I have, I'm not very good with mindmaps. I tend to have a linear plan. I have an introduction, then because this was on teaching theories: multi-sensory teaching, using colour, using this and then I put these bits under these headings that then get moved around or changed or developed. So I start by having some headings which I then I put stuff under which then.....

GP And that actually is leading you on to your writing more than a mindmap?

F Yes, I think it probably would. I still think a mindmap would be a good idea but maybe next time.....

GP Do you never use mindmaps?

F I used them quite a lot to do for if I'm reading something and I want to organise the ideas. So that's quite useful and I'm sure if I spent some time it would be very good because I could put all these headings in a mindmap and it would work quite well.

GP So you use mindmaps very specifically to get that overview.

F Yes, how everything fits together.

GP Can we talk about what took you the longest? Is it the drafting? Is the finding the words? What part of it?

F The whole thing!!! I don't really know. I really don't know which um there was an awful lot of changing. An awful lot of it developing and I spent ages doing this great long introduction which I completely scrapped because it was talking about totally the wrong thing but I seem to get stuck on things and they go round and round and round and if I'm not careful I develop a very good bit and then where is the rest?

GP Can we talk about when you make notes when you are reading. Do you have a system for making notes?

F I have sticky *(Loses the word and has to be prompted)* post-it notes, bits of paper and um large numbers of books and journals which are, the

journals all with coloured pens and post-it notes and no, not a terribly good system.

GP Ah, but you do have a system. You obviously like to colour code.

F Yes and to find things. And I have piles as well. The trouble is that things need to be in two piles and that gets a bit difficult but I do have piles of things all round. (*indicates physically having the piles around her while writing at the computer)*

GP Interesting. When you are reading, say a journal article, usually the journal articles are more difficult to read than a chapter in a book, though not always, do you have any difficulty selecting information which is going to be useful or is that not a problem?

F Um, no I find that actually less of a problem in journal articles than in books. I find that journal articles, because they tend to be more focussed on one thing whereas books tend to have a large amount of things and where do you start? Journal articles and and …I tend to read journal articles by reading the abstract and if that's OK and then I read the introduction and then the conclusions. And if those are sensible I read the middle. If the abstract doesn't seem to be relevant then I don't bother.

GP What if you read two things, two chapters, two articles, and the authors seem to give you conflicting information. How do you cope with that?

F With great difficulty. Then I have to decide: 'Well what do I think?' I do put quite a lot of what I think. If I don't really like somebody's saying, I don't necessarily ignore it but I've got more emphasis on what the other (*is saying)*. But you can write by saying that there is this, this and this but so and so disagreed so you know it is quite useful to bring in somebody who disagrees.

GP Do you have any system for gathering quotations or do you do that as you are writing?

F As I'm writing. With these last couple of essay, because you don't put quotes in quite as much like in my English essay where I put in great big enormous quotes of things, it's more making sure that I have put the reference down and the idea down but in the English essay again I used big highlighter pens and …. I have this strange thing that I know whereabouts in the book I have read something, whether it's in the beginning, in the middle or about the end and whether it's on the left or the right and whether it's in the middle or the bottom of the page and I can picture that and I can't always picture that right page but I can find it by looking that way.

GP Does that mean that you can picture that (*the physical presence of the information)* but you can't necessarily picture the detail of what it is? You have got a gist of it?

F Yes, I've got a gist of it. So and so has said… and that was in that book, about the middle, on the right hand side, now where is it? Now if I've marked it that's OK I can find it but if I haven't actually put a post-it note or a highlighter pen or something, I can't always find it!

GP So what sort of notes do you make? I'll ask you in two parts. Do you make brief notes or are yours quite sort of wordy?

F They are quite sort of wordy notes.

GP Do you ever use bullet points or headings or not?

F I use headings a bit. I suppose you could say that I use bullet points in the fact that I use new lines!!

GP Do you handwrite or do you put those straight onto the computer?

F Oh, straight onto the computer. Never write anything by hand.

GP Do you find that writing notes straight onto the computer is OK?

F Yes, I think so. If I write by hand I can't read them again.

GP Is there also something to do with speed?

F Yes, probably now I can work much quicker onto the computer now than I can write.

GP Do you read from a computer screen?

F I do but I find it, It depends if I want to read it carefully then I print it off.

GP Why is that?

F I think because you can focus better on to it. Because there is this distance. I like curling up with a book, you can concentrate more on it. You can't curl up with a computer but what I do use is the Kurtzweil program to read complicated journals to me. I found that quite helpful. It seems to go in because it is highlighting each word and it's speaking to me and I have the words per minute fairly fast and I just slow down if I think there is a bit where I need to be a bit more careful and that way I get an overall view of a journal because I find it **really hard** to read something from the beginning to the end. I get a bit bored!

GP Oh?

F I lose concentration. I can read to the end of the page and say: 'yes, well what did that say? I can't remember any of it and I know that I have read everything but my brain has been somewhere else and I haven't quite taken any of it in.

GP Do you make a plan for your essays before you start or does it emerge as you along?

F I make a sketchy plan and it emerges and changes often on the way. If I can have a plan which tells me what.... A thread..... some thing which is going to go all the way through from beginning to end I find it much easier than um if it's not, like this essay. The last essay had this thread that students find reading difficult and to be good , higher education students they need to read so then I had that all the way through which was, well there was lots more to it but I had that thin thread all the way through whereas as this time I did not have one and it was hard.

GP And with that thread do you keep reminding yourself of it on each section?

F Yes, it keeps you much more focussed.

GP Now you say you do quite a lot of revising as you are going along and that is your style of writing so therefore do you revise your plan as well?

F Yes, it can do.

GP Do you print out a plan or do you not bother?

F Yes, but again it is pretty sketchy.

GP Do you use sub-headings with a plan or is it not a mindmap plan?

F I'm just trying to think whether they are headings or sub-headings. I have sort of sub-headings and headings and then I put each bit and then I put notes under that bit.

GP What sort of system, if any, do you have for proof-reading before handing it in?

F I need to have somebody to help me proof-read. I use technology which helps a bit but I need it particularly for my missing punctuation. As my husband said: 'Don't you like commas?' So I need it for that and um more than anything for that and for when I've missed out words and they don't quite make sense. And there are the odd words which you have got the entirely wrong word which the spell-checker doesn't pick up. And technology picks them up to a certain extend but you have to be quick enough to realise that it hasn't read what you thought it had read.... Written.

GP Do you ever have, or use the read back facilities for proof-reading facilities?

F Yes, I do but it's not enough. It helps, it helps.

GP So do you hear what you think you have written?

F No I usually hear but have to be on the ba... I have to really concentrate because I can miss it quickly. Even if I have it reading slowly, and if you have it reading too slowly then you can't hear where it needs a full stop or it's not quite making sense so it does help but there is no substitute – not when I've got a nice proof-reader available at any time.

GP Are there any things that I haven't asked that you would like to mention because obviously I am trying to find out about the dyslexic writer. Because you have had to learn the hard way in many ways. There may be many things that you do that you think yes they work very well for me but other students don't know about them.

F Yes. The sort of things that I do which I don't think are really the best way of doing them. But I have got into bad habits, shall I say. It really helps when you sit down with a tutor with your essay which you are going to write and they help you to tease out the main things which you want to put. That really, really helps. It's not telling you what to write or anything. It's giving you an idea of where to start and what are they main things.

GP That means that all tutors in the University should be doing that sort of thing?

F Yes I would have thought it would help anybody. To have a lecturer say to everybody: Look you're writing on this and these are the main ideas which need to be thought about.

Interview with Student G

GP How did you get on with the writing log?

G I found it quite easy to understand and know how to handle it. The difficulty was really the audio side of it, not the actual writing of the log. The reason behind it was that I could actually hear the first beep before the first beep came because there is a background beep that comes on and therefore I was aware that it was coming up when it came close to the time so a split second before the beep comes you are interrupted with what you are doing so in a way it gives you a clue that something is going to happen. But the bad thing from my point of view was that personally I have a little bit of a problem with tinnitus and I didn't really appreciate that this would cause me any difficulty before I started because I had never done this before hence the surprise for me.

GP Did it interrupt your thought processes? Did it affect your writing?

G It did in as much as I tried to do the writing for this at home base so that I had the writing log, somewhere to write and the recorder and I didn't realise to what degree in the past I actually mull things over while I'm out and about and I didn't realise the amount of odd strategies that I perhaps used.

GP It's interesting because most of the dyslexic students have said that they don't just sit down and write and that part of that process occurs just as you have said at different places so you mull over things at any time. When you say 'mull over' is that thinking about what you want to say and how you want to say it.

G Two things really. It depends on the depth I want to get to with a book. Because of the problems I have had in my education background my reading when I was at school was abysmal. I don't know if I have mentioned it before but by the time I got to 'A' level I had done one book cover to cover and it wasn't cover to cover, it was actually 'Wind in the Willows' and that was the only book that I had read through until the time that I finished 'A' level and that was because it was a novel whereas I was quite good with dry facts but when it comes to any sort of in-depth reading now I quite often walk and read and obviously with this I couldn't take the paper with the machine and start making notes. I also found that I would quite often be sitting in the car and the ideas would be going over in my head and I found that I was putting brakes on my thinking process to try and achieve what I was being asked to achieve so that I was having to do it in what I thought was a bit stilted for me. But having said that I like it in one respect because it made me very aware of how odd these strategies are for the first time.

GP Does that matter that they are, not odd strategies, but different strategies

G No when there is no embulical, er, ub.... umbilical chord to tie you to a particular place it doesn't matter what I'm thinking when I'm thinking,

whether I'm driving or whatever I'm doing. It doesn't normally bother me but with the strategy I was having to use it wasn't match my process.

GP Yes, now because you like to think and mull things over does that mean that you can hold all the information – is your memory OK to hold all that information?

G Yes.

GP You don't lose any of it?

G No but that is maybe when the organisational problem comes in – the fact that when I have so much of it. Can I give you an example. If I go to a restaurant, most people go to a restaurant to eat a meal, whereas I go to the door I notice, I have difficulty filtering, and so I perhaps with my catering background in the past I would notice where perhaps the fire facilities were or something like that. It can be anything. So it's like you take on board anything and absolutely everything. In a way that becomes where the problem is, the filtering process and it is an organisational task to try and keep yourself focussed on what it is you are trying to achieve.

GP Because you absorb so much? It can then go into overload?

G I suppose, I suppose. I don't know I have never found, it gets tedious so maybe that is overload but I've never found it overload to the extent that I would say enough is enough that I cannot do this – not yet! So that is pushing yourself to limits all the time and I suppose that you can always push yourself a little bit further but it all depends on what you take on.

GP Tell me what the essay was about. Which one did you use for this purpose?

G The 'Methodology' one.

GP Very briefly what messages did you want to give in that essay?

G What, before I started?

GP No as a result of doing the essay?

G Um, for me it was to try and put into words a process that I know works and processes that I know work. But not just fitting what I think to an educational overall plan. But I just thought it was time that I got a structure around what worked. And just because I say something works people don't just say 'oh, that's very interesting' because they want to see how and why. So it gave me an opportunity.

GP It gave you a framework that you can now share with other? Does it bring cohesion to what you have always done intuitively?

G It did in the fact that for the first, well once I had got it to a certain size I had to start cutting, this was the problem that the more, how can I put it, (pause) the more interested you are in something therefore your mind will just go on and on and on and perhaps ramble and it becomes a process of what you are going to cut out and then sometimes with my first essay I would cut out pieces and then I would end up with something which didn't quite hang together for whatever reason because I knew what was in my head and where I was starting from but it didn't match the end product at that first time so I learned from that and then went on to something that I thought had got cohesion and what I did in the end was what I always tell people to do – not as I say but as I do, you know – what is the expression: do as I say not as I do and for one time I thought I had better do what I tell people to do. And I actually recorded it all and listened back to it and when I was unhappy about it I did it that way. Because what I tried first of all to do was get someone else to read it, somebody else who didn't have a handle on what the methodologies were and that was too difficult because they didn't understand where I was coming from.

GP And they were looking for the wrong things and picking up on the wrong things for you which was unhelpful.

G Whereas what I was really looking was somebody just not meaning to look at the language concerned but rather the ideas. I was very aware of when the ideas didn't hang together.

GP When you listened to it but not when you saw it on screen?

G Yes, when I listened to it. I found it quite difficult to see it on scre... (screen) I found it much more difficult to actually .... To print it out. So I ended up with lots of copies and that became then another problem.

GP Yes, an organisational one!

G So I started having to do things like versions 1,2,3, 4 and 5 and all this sort of thing and then suddenly finding that I had actually wiped out one prog (program) you know the usual things. But it is a learning process and I suppose in a way you just get better at doing things and this is what we tell the kids to do.

GP Do you find that you can proof-read better by listening or by looking?

G Both. I've got to have both the script and listening to it. I think just listening to it, I don't think I could do that. And doing it just from the screen I found it difficult because I wanted to, just what was that in relation to, I just wanted to flick over two or three pages and say 'Ah, that's this' but you can't do that on screen easily because you scroll and it doesn't give you real. It's not real, it's not what you see is what you get. You lose sense of the wholeness of it. And at the end of the day if that is what you want to submit this is what you want to look at as a finished piece and say well this is not going to hang together because .... And then start mulling it over. Whereas on the screen nothing

about it is quite the same. (needs the visual sense of that it will look like as a finished product for the reader)

GP Do you think that on the screen it is much more looking at the secretarial aspects of proof-reading. By that I mean, the spelling and grammar checker aspects.

G Um..... no what I did do – not with this particular essay- but I did actually do a piece where I used access to a Kurtzweil reader and that is totally different to TextHelp read-write. I could not do editing with Texthelp read-write just because the voice. So it was much easier for me to take the text, print it out, read it out and see if I was happy with what I was getting because my reading skills are not bad and now because of the volume I can actually read I don't have a difficulty from that point of view. There are other things like I think I might sometimes think that something is in there that I thought is in my head and I haven't put it in and then when I come to re-read it and I suddenly think, oh.... That's the editing and in a way if I was just doing it from the screen and just going through it from a secretarial point of view for the spelling the computer is good for that but it wouldn't pick out the holes.

GP Which is the editing process for you.

G Yes.

GP What did you find was the most difficult part of writing the essay for you?

G Well in a way I thought it was a bit of a false start because of the feeling of being tied because I was only being able to write in certain ways and in certain places. That was the most difficult thing. I suppose I could get used to it if I had to like anything else.

GP Taking essay writing which consists of different aspects – you know you have to plan; you have to formulate your ideas into language; get them down on to screen or on paper; you have to edit it; you have to proof-read it; you have to collect information at some stage – which of those aspects do you find the most difficult?

G I don't know really, to be truthful. On the basis, that in a way, they are all relatively difficult. Do you want me to do? To judge them against a scale – one to ten? If I say that they are all difficult – you need a moving pointer which indicates that that is hurting me that much and so in a way it becomes that sort of thing. It is to do with discomfort. How much discomfort does it put you in? And does that mean that if it is not a discomfort therefore it's easy. If the answer to that question is yes, then I suppose the easiest one in a way was just to do the actual writing, you know the typing.

GP When you say the actual typing do you mean the formulation of getting the right language?

G Well that wasn't the easiest. Is it the easiest you wanted? Sorry was that what you asked me? The most difficult was that.

GP So the most difficult aspect is the actual formulation of what you want to say and putting this into a sentence and paragraph form.

G Yes, without a doubt.

GP What aspect of that is so difficult?

G Because I don't think in those terms. I think in terms of key words or ideas. It can be very quick because my reading speed I have pushed it so that I can read a lot quite quickly. Sometimes I want to read in different styles for different reasons. It's a bit like driving a car – I can alter the speeds now and well I suppose in a way when I was at school nobody ever challenged that and nobody said try this at this speed and this at that speed.

GP So for you in a sense do you find that trying to get the right words that you want – is that any problem for you? Retrieving the word says just what you want to express.

G Ah, that's a different matter, isn't it. That's when my language skills will let me down. In the fact that I won't have the range. So I might start putting some ideas together and say um I'm not happy with that. It doesn't really say what I want to say and then I might have to spend some time looking for a word. So in a way that's the beauty of having access to a computer with not just a spell-checker but also a thesaurus and a dictionary. Those are not additions; those should be absolute and sacrosanct. Spell checking alone is not enough on a computer and it just can't be.

GP If you use the dictionary on the computer. You know you are trying to get hold of a phrase or a word which just says what you want and you bring up a thesaurus....

G I bring that up first....

GP Right. Now are you able if you have got a choice of words, once you see them, you can click onto the meaning. Is that how you use that?

G If I was really stuck – because in a way the dyslexia or whatever you want to call it, it must be something to do with the short term memory problem that you can construct a sentence – obviously a sentence that is too long – you use the same bits within the sentence so the usual thing is I write 'did that, did that' – like the kids would do . And then you think I've got the same word in five times or something like that and then you have to start retrieving other ideas because you want to say the same thing in a different format.

GP And that is time-consuming?

G It is.

GP It's not difficult – you can do it but it's time-consuming

G But for the ideas in my head it's not necessary. Because I have them in my head in a very different way.

GP Now, let's just explore how you have your ideas because I am fascinated by that.

G Well they range from – it's difficult to really put it into words. Sometimes from gut feeling that you know that that is an area that has to be teased up/out – a bit like string get bits out of it. Some maybe useful and the rest of it will be put on the side but not in the bin because I have to admit that I have found that when I read anything now I don't forget it. I might forget where it is or who it was but it is a bit like faces. I can remember people from 30 years' ago and I might forget exactly their name but I would certainly know them when I know them in the context that I met them in before. Get that same person to change his uniform and I can see them two days... out of context sometimes I might not have the same but if the face was in the same frame or the same size or the same proximity but if they were like 20 yards down the road, I wouldn't know it was the same person because it is not in the same frame. So when it comes to reading there are... I might suddenly think 'I remember reading something about' this is what is going on in my mind. e.g. James Burke 1970 or that sort of era because obviously I don't keep a bibliography for all the things I have ever read.

GP When you think about how you think about things and how you store your information – do you store it in words or in pictures or a bit of both?

G Both. Because usually if it is in words it is because they are outstanding for some reason. You know something which makes them memorable because I just like the way somebody has played with the word. Usually because I can't. And that is why I remember it. It's a bit like hearing a piece of music which would then haunt you. You wouldn't necessarily be able to just do an instant recall on it. You would hear it and there would be something about that. Because at the end of the day it is the music of language when you have to get from the page and how the reader takes it on. And what is in your head – you've got your own music. Does that make sense?

GP Yes. My music is very much in words in a linear way of thinking of ideas with headings, subheadings and branches of information – all in language. And that is how I bring together an idea. You may not do that?

G I can't do that. I would like to but I can't do that. I usually find that I've got all these words, or the concepts that I want to get over and then I find that I'm putting in sub-headings afterwards and I think it is always obvious when I do that.

GP So you start from the big picture?

G Yes, I don't how else to ..... because I know what I want to say quite often before I .... Do you see what I mean?

GP So Have you done quite a lot of rehearsal, quite a lot of thinking in your brain before you get to the stage of physically writing it.

G I suppose in a way that's where you ... because you end up.... I do reading about material that you are interested in or you are reading about something you want to get more information from or you are trying to get greater depth in something because you think I don't quite get the handle on this so I need to re-read this. I don't know if you are fitting to meet.... but you've got some picture or some idea in your mind and you must be trying to use those hooks to hang together for a whole picture.

GP Do you ever find then that when you are writing, when you are at the stage where you are thinking I've got to get this together in sentences and paragraphs, does it ever happen to you that something flows quite easily because you've had experience, you remember how other people wrote those sort of things. Or do you not tap into that?

G I think I must do. Because I just probably have blank paper syndrome at some point because I do find it quite difficult to start from scratch. A bit like the artist. If I was an artist, I would go to the board and do some on the board but probably rub it all out. But once you've started you've started. I think on this one the first thing I wrote was 'today' and later scratched it.

GP When you are reading, I am getting a sense that you read quite a lot and then you mull over all the ideas that you have been reading about. Do you ever take notes or do you always hold it all in your head.

G It depends how important it is. If it was for an essay then I probably have to take notes.

GP Do you find it difficult to choose and select specific bits that you want for an essay?

G I don't know. That's a hard one. I dip into it like whatever is in my head, like a pot, like a paint-pot. Sometimes I can get something down. I may write 'nomsky' or whatever it is but I might not know what it is but I know that there is something that I want to put down and then I would have to go back to the note-taking or whatever it is and fill in the gap. So in a way I'm using a key word to put in what I know is in my head but I can't put on paper (can't formulate the syntax and sentence structure).

GP What would your notes look like? Would they look like paragraph, key words, bullet points, do you use colour?

G Sometimes if I had overheads or transparencies I could quite easily use coloured things on those and put them on screen and look at them from a different point of view. I have done that before but it all depends on what you

have got available. So if it's a felt-tip pen and a white piece of paper then that's what I would use.

GP Do you use bullet points at all?

G I do it on the computer with bullet points. I tend to use key words or something equivalent to a mindmap or some sort of mindmap device.

GP When you are reading that brings it all together for you?

G Yes, it's usually some sort of little bit of a picture that is of no use to anybody else but something which has a meaning for me.

GP So what do you do about quotations? How do you organise yourself? When you are reading you might think 'Oh, that's a really good quotation.' So that you don't lose it, what do you do? Have you got a system?

G I have since starting this course. On the basis that I use the card index system. I thought that would be sense.

GP So you don't put post-it notes in books?

G Yes, I do that too. But I sometimes, I have found in the past, if it was really important and it was a book that was re-read a lot the post-it notes would go missing so therefore then something more substantial. And that is why I thought I had cracked it with the computer.

GP Do you use separate files on computer for the quotations?

G I didn't do, I did that with separate when I was actually writing the essays I did a separate reference for each of the essays but that was when I was actually writing (referring here to the Reference List at the end of the essay) not when I was reading and trying to build up info. The trouble with having the cards with you all the time. I was finding that when I was here I didn't have the cards because I had left them at home so I was trying to get a mix and match with a lot of different things. If it was just me ordinarily (not doing it with the writing log), having something niggling away, and I want to find out, I'd maybe just go to the particular reference and say 'that's where I should be looking'. I would find a reference at the back of the book and that would take me on to the next place to look.

GP Your notes system: you use mindmaps which help?

G I use a lot of paper as you can see around here and a lot of tapes.

GP Ah, you use tapes.

G I do. If I need to keep them. But that's the point you see it depends what you are asking me. This task is only for a short space of time but I've been reading now for a long time so if you are asking if I take notes for all time then the

answer is no. In a way I've lost out. Lots of things I would like to put into these essays I probably haven't had the time to start teasing out and finding out all the information from everything that I have ever read.

GP OK. You mentioned that blank page syndrome which obviously makes it difficult. Does that make you feel tense? What is it like when you have to get down to the writing? What does that feel like for you?

G In a way it depends whether you are being told what you have got to write. Because if I have to decide what to write that is more difficult because of all things that I could write about, what am I going to write about. So whereas if somebody is actually bringing you into a tight channel then it is easier because you haven't got the range to think in terms of. Is it daunting? Yes, because all... I think that all academic writing is daunting to me because there is a whole area of academic reading that I should have, could have done earlier and didn't get around to.

GP Do you do an essay plan?

G I tried.

GP When did you do it? At the beginning or....?

G Not right at the beginning.

GP Did you collect some information first and then do a plan?

G Then I suddenly found that I was getting things out of kilter in the fact that I was getting too much information of one area of what I was trying to say and that was when I suddenly thought I'd try and get a plan around this – it might just make it a bit more..... um.....

GP So you used your plan to help you to collect data more effectively?

G And to help me to filter out.

GP Did you have your plan beside you all the time your were writing your essay?

G Well I had it available.

GP Did you keep referring to it?

G I did, yes.

GP Did it keep you on track? Or was it used for a different purpose?

G I think it might have been used for a different purpose – a thing at the back of my mind, it was like cracking a whip to me just to say 'hang on – this is where you should be'.

GP When you start to write a section do you have a plan for that section in mind or do you just write?

G No because that implies that I'm going to sit there for ten minutes or 15 minutes to write. When I've got an idea if I start writing at 6 o'clock in the morning on a Saturday I might have a problem with Margot(wife) wants to go shopping or something, or I'm needed at 2 o'clock. So it depends on... so the time element is a problem. I did find it very time-consuming

GP So with the 3 essays you did, do you think you took longer than a non-dyslexic person to write those essays, right from finding the information to handing it in. Do you think it took longer?

G I'm sure it did in the fact that I'm sure that someone who is not dyslexic can probably just sit down and say this Saturday, xyz is happening, I'll sit down and do this, it can be a slot of time. I suspect. If I did that I would probably sit down that Saturday and suddenly go 'right I'm here. The diary says I should be here but you know why am I here or something like that even if I have title of the essay. It's a bit like saying to a musician on Saturday day week you will sit down and compose something. And that is the way I feel.

GP So you see writing as a really creative aspect – something coming from you – rather than a mechanistic – you've got to do this essay.

G Yes, and that's why I feel a bit of a perfectionist with it in some ways where I actually spend the time and effort, that it's got to be right. And in a way if it's too big I don't make it too small and then I feel not satisfied because I think that some of the ideas – really important ideas that I want to get in – are not getting in because there is not enough space because there is not enough wordage and I found that difficult.

GP So do you find it difficult to select and reduce it. Do you find that difficult?

G Almost impossible.

GP So your summary skills are something that are really slowing you down.

G I would say so.

GP When you are actually doing the draft, you know doing the writing bit, do you tend to write a whole paragraph and then look back on it and edit it or do you, as your writing, is it constantly changing?

G Yes, I suppose it is constantly changing because sometimes... depending upon where I am ... if I was trying to write something on paper and then when I came to write it on computer I might have a different slant on the same idea. So does that say yes? I suppose it does.

GP You know when you are thinking of getting a sentence down? Well you won't necessarily be thinking of getting a sentence down you'll be thinking of

getting an idea or a thought down. Do you rehearse that internally in your own mind before you actually write it?

G No, I probably don't and that's why when it comes out it comes out like a long sausage.

GP Is that because if you were to rehearse it...

G I'd lose it.

GP You'd lose it? And that's because you would lose the language and you need to get it straight out and then play around with it?

G I quite often find that for instance I don't know if I have told you before, if I've spoken to people in groups and if I don't have the props I find it difficult to do the talk. I can do all the planning of exactly what I say and I can time it down to whatever, but then I would never read what I have written. And if I didn't have the props that would tell me those same things I would be lost. So in a way.... Does that answer the question?

GP So when you are writing if you have got..... some people rehearse. I will for example sit at the computer and I will rehearse my idea in my head and then I will just type it and I can hold all the language in my head and just type it. You can't do that?

G No I can't do that. I'm sure I can't.

GP So you like to get the chunks out and that is your long sausage – all those different chunks – and then you will play around with it.

G How do I make it make it make sense. Because at the end of the day what is in my head doesn't have the connections of language to hang it together. Because ***I*** don't need it.

GP Anything that you now want to make a comment on about a dyslexic person essays that I haven't brought out.

G It's very individualistic, very particular. Quite often, this is the difficulty, unless they do it, they don't ever find out how they actually do achieve what they set out to do. And in a way part of the testing process for them is to be challenged to do something, and if they find that they can't do it then look at why they can't do it. Whereas, quite often what they feel is that they are a failure because they can't do it in relation to their peers – certainly in relation to educational terms.

GP What strategies do you use to get round your dyslexic difficulties when you are doing something like this? What sort of things do you use that will compensate and help you do it more effectively?

G Props. I think that is the best way to describe it. Things like having a hand-held tape recorder. UM, what else?

GP Do you use the hand-held tape recorder to say sentences on?

G No. If I had it at home and it was sacrosanct (dedicated just for my use) for my use I would. But when it's here (at work in school) I've used before now and then the kids use it and the trouble about it is that it then becomes an organisational thing – which tapes in which machine – and if it's important then it's gone. So I try not to use strategies that don't work.

GP Do you use the computer? You have mentioned Kurzweil?

G I have used Kurzweil it

GP And you've used it to help you tidy up and give a good polish to your written product?

G Well it actually gives a good speech-back of what you've put in. And regardless of whether you have typed it or somebody else has, the voice range and they way you can alter the speeds – I know you can alter the speeds with TextHelp Read and Write but not as easily as with Kurzweil– but with Kurzweil it is at the click of a button you can have it going, so that on a bad day you might want to have a different reading speed whereas on another day you might want to change the reading speed. I use a variable speed audio tape in the same way.

GP With Kurzweil, if you listen to it can you identify if your sentence doesn't make sense, if it's not well constructed?

G I think I can. Because much more so than with TextHelp.

GP Is that because it's a more stilted voice?

G No because well maybe it's because of the way that I work. Certainly the running of it and they logic of the way the program work when you get it actually highlight and read it through, if you want it on the TextHelp to read it properly and highlight it you have to do all sorts of manipulations whereas the Kurzweil highlights its as it's going through and you can have the sound switched off and have it silent reading and all sorts of variables at the click of a button. Much easier.

GP So because the technology has improved, the way they have programmed it it does the job for you now.

G I must admit that I have put in an application for 'ACCESS to Work' funding, through school, which they are supporting and Kurzweil is what I want. I'm not going to go for TextHelp Read and Write because I now know that it won't do what I want it to do when I need it to do it.

GP I think that at lower levels of writing.....

G Oh sure,

GP Some children, for example, 'A' level etc – I don't want to say that there is a cut-off according to age. But for your professional context you think that the Kurzweil is much better.

G Yes.

GP You mentioned mindmaps – do you write those out yourself or do you use a software product that will help or do you use both?

G Are we talking now or in the past?

GP Now

G I suppose in a way I use a visual mindmap when I want to do something that's art, feels artistic, rather than use a computer because I might just want to sketch something out in my mind – that's just how it feels.

GP So mindmaps feel like sketching things out the picture that is in your mind on to the paper?

G Yes. If I could get that same sketching out on the computer with something like Inspiration – it's alright but it's not quite enough. It's the start of something and I should think it will be absolutely amazing. I used to use Thinksheet and it was an absolute godsend.

GP Is there anything else you want to tell me?

G Yes, there is one thing: how you combine the visual and something like the audio. I haven't found out anything yet that will do it but if I could find something which would use a book and the audio version on a CD then that would be my ideal.

Appendix 4

Dyslexia Support Services Screening Information

SAMPLE

DYSLEXIA SCREENING QUESTIONNAIRE

Name of Student: Year:

Course of Study: Date:

Background / History

Did you have any difficulties with study at school?

Details:

Reason for Assessment

What particular difficulties are you experiencing with your studies?

Did Tutor suggest assessment?

General

Have you ever had difficulty telling left from right?

Do you find map-reading or finding your way to a strange place confusing?

SAMPLE

Reading

Do you take a long time to read a page of text?

Do you have to read and re-read sections in order to fully understand it?

Do you find it difficult to remember the sense of what you have read?

Do you accidentally skip lines or sentences?

Do you lose your place when reading?

Do you misread words?

Do you unintentionally skip words?

Do you avoid reading or reading aloud?

Are you bothered by white or glossy pages?

Do the words get blurry, move or change?

Do you dislike reading small print?

N.B. Many of these questions are possible indicators of Meares-Irlen Syndrome

Note-taking

Do you have difficulties keeping up with notes in lectures? Why?

Do you tend to write down everything the lecturer says?

Or do you put down main points only?

Do you make notes in sentence form? Diagram? Bullet points?

Can you make sense of your notes after the lecture?

Do you find it easier to concentrate on listening?

Do you find it difficult to make your own notes from research reading?

Have you ever tried tape-recording lectures?

SAMPLE

Spelling

Does your spelling worry you?

If so, why?

Do you misspell familiar words?

Do you misspell longer, technical words?

Do you tend to spell phonetically?

Do you have difficulty remembering what words look like?

Do you have difficulty with remembering sounds of words?

Do you have 'good' days and 'bad' days?

Do you have any spelling strategies that you have found useful?

Writing

Is your handwriting difficult to read?

Is your rate of writing slow?

Do you run out of time in examinations? Do you know why?

Do you have difficulty getting your ideas into a good order when writing assignments/essays?

What is your usual procedure for approaching written assignment?

Does essay writing/report writing take a long time to complete?

Do you have problems with grammar/sentence structure/punctuation?

Do you find it difficult to plan essays well?

SAMPLE

Language / Listening

Do you get words muddled up/confused when speaking?

Do you sometimes have difficulty finding the right word?

Do you lose your train of thought easily when speaking?

When you have to say a long word, do you sometimes find it difficult to get all the sounds in the right order?

Are you easily distracted when studying in the library?

Does background noise in lectures affect your concentration?

Sequencing/Memory

Do you find it difficult to do calculations in your head?

Did you have difficulty learning multiplication tables when you were at school?

Do you find it difficult looking up information in the library?

When using the telephone do you tend to get the numbers mixed up when you dial?

How do you remember telephone numbers?

(By saying the numbers? By pattern made on a pattern pad?)

Do you have any strategies to help you remember things?

What techniques do you use for revision?

Form 3

A B O S E R T H U P I V Z J Q

see	red	milk	was
then	jar	letter	city
between	cliff	stalk	grunt
huge	plot	sour	humidity
clarify	residence	urge	rancid
conspiracy	deny	quarantine	deteriorate
rudimentary	mosaic	rescinded	audacious
mitosis	protuberance	longevity	predilection
regime	beatify	internecine	regicidal
puerile	factitious	lucubration	
epithalamion	inefficacious	synecdoche	

NAME A C F O W N G L D I K Y X

1	go	Children go to school.	goh
2	cat	The cat has fur.	kat
3	boy	The boy plays ball.	boi
4	run	Jenn can run fast.	run
5	will	They will wait for you.	wil
6	cut	Mother will cut the cake.	kut
7	arm	His arm hurt.	ahrm
8	dress	The dress fits well.	dres
9	train	The train was on time.	trayn
10	shout	If you shout, he'll hear you.	showt
11	watch	My watch is fast.	woch
12	grown	Potatoes are grown in the field.	grohn
13	kitchen	Our kitchen is small.	**kich**-ĭn
14	result	The result of your work is good.	ri-**zult**
15	heaven	Heaven surrounds the earth.	**hev**-ĕn
16	educate	Parents educate their children.	**ej**-ŭ-kayt
17	purchase	He did not purchase the car.	**pur**-chăs
18	institute	The art institute held an exhibit.	**in**-sti-toot
19	suggestion	My suggestion was followed.	sŭg-**jes**-chŏn
20	equipment	The office got new equipment.	i-**kwip**-mĕnt
21	museum	We went to the museum for the afternoon.	myoo-**zee**-ŭm
22	occupy	We occupy a small apartment.	**ok**-yŭ-pī
23	illogical	His thinking was illogical.	i-**loj**-i-kăl
24	familiar	We are familiar with the news.	fă-**mil**-yăr
25	reverence	Older people should be treated with reverence.	**rev**-ĕr-ĕns
26	physician	Our family physician examined me.	fĭ-**zish**-ăn
27	prejudice	Prejudice is harmful to people.	**prej**-ŭ-dis
28	appropriation	Congress made an appropriation for schools.	ă-proh-pree-**ay**-shŏn
29	necessity	Food is a necessity.	nĕ-**ses**-i-tee
30	commission	The commission reported to the mayor.	kŏ-**mish**-ŏn
31	assiduous	Assiduous effort gets results.	ă-**sij**-oo-ŭs
32	loquacious	He was loquacious during the interview.	loh-**kway**-shŭs
33	sovereignty	The country kept its sovereignty.	**sov**-ĕ-rin-tee
34	irresistible	His idea was irresistible.	ir-i-**zis**-tĭ-bĕl
35	occurrence	War is a tragic occurrence.	ŏ-**kur**-ĕns
36	auricular	An auricular defect pertains to the external ear.	aw-**rik**-yŭ-lăr
37	imperturbable	Her imperturbable attitude was reassuring.	im-pĕr-**tur**-bă-bĕl
38	iridescence	Iridescence is a play of colors.	ir-i-**des**-ens
39	boutonniere	He had a hard time pinning on his boutonniere.	boo-tŏ-**neer**
40	mnemonic	It is easier to learn a long list of words by using a mnemonic trick.	ni-**mon**-ik

WRAT3

WIDE RANGE ACHIEVEMENT TEST ☐ REVISION 3

NAME _____ GENDER: ☐M ☐F

DATE _____ BIRTH DATE _____ AGE _____

SCHOOL _____ GRADE _____

REFERRED BY _____ EXAMINER _____

TAN TEST SCORES

	Raw Score	Std. Score	%ile	Grade Scores	Absolute Score
READING					
SPELLING					
ARITHMETIC					

Use only standard scores for comparisons

SPELLING/A MEASURE OF WRITTEN ENCODING

by Gary S. Wilkinson

NAME _____ (1&2

(3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15)

1. _____ 16. _____ 31. _____
2. _____ 17. _____ 32. _____
3. _____ 18. _____ 33. _____
4. _____ 19. _____ 34. _____
5. _____ 20. _____ 35. _____
6. _____ 21. _____ 36. _____
7. _____ 22. _____ 37. _____
8. _____ 23. _____ 38. _____
9. _____ 24. _____ 39. _____
10. _____ 25. _____ 40. _____
11. _____ 26. _____
12. _____ 27. _____
13. _____ 28. _____
14. _____ 29. _____
15. _____ 30. _____

5/10 RULES

Name/Letter Writing	
Word Spelling	+
Total Spelling	

WIDE RANGE
15 Ashley Place, Suite 1A, Wilmington, DE 19804-13

DAST Record Form for _____

tering Scores

te the test scores in the 'Test Score' column of the score table below. Find the Score Key appropriate for the subject's age (and whether ıot you want the student norms). Place it carefully on top of this sheet. The cutaway allows you to enter the 'At Risk Index' scores in third column of the score table. Look up the corresponding index (---, --, -, o, +) in the right hand columns of the Score Key (using the ructions at the top of the Score Key) and enter it in the 'At Risk' column on this sheet. Make sure you use the appropriate Score Key.

	Test Score	'At Risk' Index	---	--	-	0	+
. Rapid Naming							
². One Minute Reading							
³. Postural Stability							
⁴. Phonemic Segment[n]							
⁵. Two Minute Spelling							
⁶. Backwards Span							
⁷. Nonsense Passage							
⁸. Nonverbal Reasoning							
⁹ One Minute Writing							
¹⁰. Verbal Fluency (S)							
. Semantic Fluency							

erpretation

rk out the numbers of (---), (--) and (-) scores. If 4 or more are (---) or (--), or 7 or more are either (---), (--) or (-), the diagnosis is 'At k'. For a quantitative measure score 3 for (---), 2 for (--), 1 for (-), 0 for the remainder and add up the scores. The 'At Risk Quotient' is ı the sum divided by 11. An ARQ of 1.0 or greater is strong evidence of being 'At Risk'. Also complete the Profile Chart. 'At Risk' areas ı as Segmentation suggest possible remediation work. Digit Span weakness suggests possible memory difficulties. Areas of strength may vide the basis for a remedial strategy.

ıll Name _____ Tester _____ Date _____

ɔmpany etc _____

.o.b/age at testing _____

ˉtory of learning difficulties ☐ Sex (M/F)

ge of school leaving/FE/HE _____

ɔcupation _____

ɜst behaviour: concentration _____

anxiety _____

ther info:

ımber with --- _____ (A)

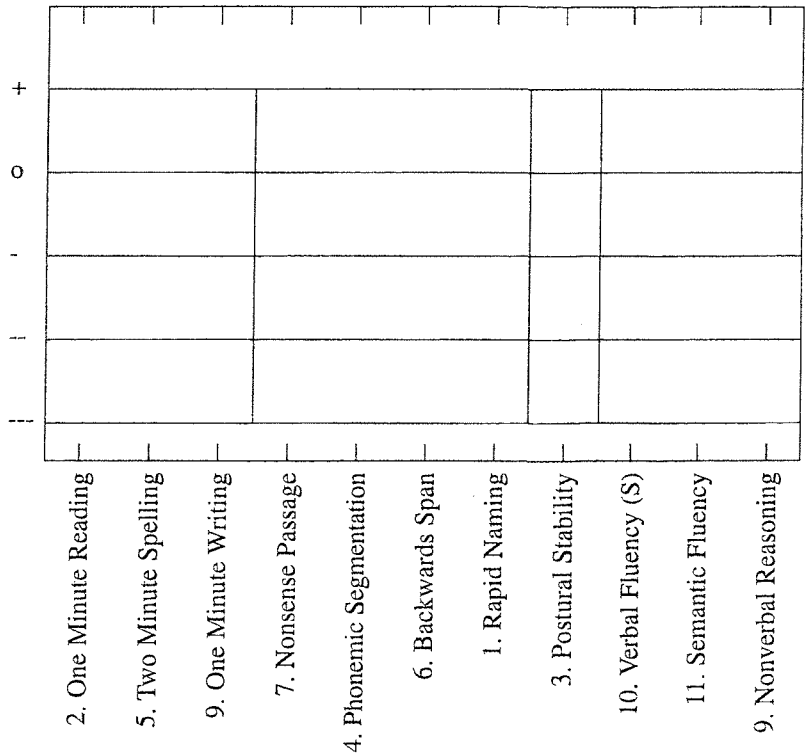
ımber with -- _____ (B)

ımber with - _____ (C)

ıt Risk' score (3xA) + (2xB) + C _____ (D)

ıt Risk' quotient (D)/11 _____ (E)

ɜreening diagnosis _____

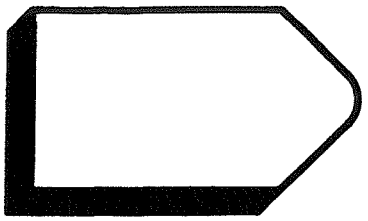


DAST Record Form for _____

1. Rapid Naming	2. One Minute Reading	3. Postural Stability	8. Nonverbal Reasoning
Time (secs)	Errors	Arms by side	1. 1 _____
Errors	Passes	1	2. 4 _____
	Last word read	2	3. 2 _____
Time + 5 x errors	(A) Words attempted		4. 2 _____
	(B) No. of errors & passes	Arms in front	5. 5 _____
	(C) Score (A-B)	1	6. 6 _____
	Time	2	7. 2 3 _____
	(D) Bonus if <60 sec.		8. 2 3 _____
Total	Total (C+D)	Total (max 24)	Score (max 8)

4. Phonemic Segmentation	5. Two Minute Spelling	6. Backwards Span	10. Verbal Fluency
1. Rainbow (rain)	Hand used	2 4	S
2. Wigwam (wam)	Handwriting quality	6 9	
3. Marmalade (malade)	(good/ave/poor)	8 3 5	
4. Dog (d)		1 7 6	
5. boat (oat)	Number completed	6 9 3 4	
6. stake (ache)	Number of errors	3 8 1 7	
7. stake (take)	Number correct	4 1 6 2 3	Total
8. stake (stay)	Add 8 if used only the	2 7 4 6 8	**11. Semantic Fluency**
9. snail (snay)`	more complex spellings	8 7 1 5 6 9	Animals
10. flag (lag)		4 1 5 2 7 8	
11. glow (go)	Time if less than 2 mins (not	3 8 6 4 1 7 5	
12. igloo (igoo)	used for bonus)	5 8 2 3 9 6 1	
13. Jarvis Cocker		6 8 4 5 3 2 1 7	
14. Sean Connery		4 1 5 3 8 7 6 2	
15. Shirley Bassey			
Spoonerism Time (t)			
Penalty of 1 if t>50 s			
Score (max 15)	Total score (max 40)	Total score	Total

. Nonsense Passage Reading	9. One Minute Writing
In the olden days, a nobactious rennifer set out to craiberg an enormous dollitroy that threatened his lammersill country. It was a really gragwally illadonter, and after killing it he was chingersomely tired. But the very next day he set out to Oligondervock to graffidanter his stettlenab. On his arrival, he met his bontuvildam at the hirsumling station. They were rinsomely married and lived happily ever after in a frumbunctious cottage in the forest.	Words (max 50) _____ (A) Time _____ Bonus (1 point for each 2s under 60) _____ (B) Lesser of B and 10 _____ (C) Errors _____ Error Penalty (1 point for each 2 errors) _____ (D)
(A) Real Words correct: (max = 59)	Writing Quality (good ave poor)
(B) 2 x Nonsense words correct (max = 30)	Penalty if writing poor (1-3)_____ (E)
(C) Score = A + B	Penalty for poor punctuation (0-2)
Time	_____ (F)
Time Bonus (1 per 2 s less than 60s, if score of 22+ on nonsense words (Max 10) or Time Penalty (1 per 2s more than 60s) Max 60	A + B – C – D – E – F _____
(D) Score after penalty/bonus	
(E) Half Score (= half of C)	
Total score (greater of D and E)	**Total Score**



RECORD FORM FOR THE MILL HILL VOCABULARY SCALE FORM 2 SENIOR

(1988 Revision)

Throughout this answer sheet, please complete the information asked for next to any headings written in BLUE, and read and carry out all other instructions given in BLUE.

Name:	Date:
Age: ..... years ..... months	Date of Birth: ..... Sex: .....
Place of Testing:	Name of Tester:
Your occupation and main duties: *or* Father's occupation and main duties:	
Mother's occupation and main duties:	

DO NOT OPEN THIS ANSWER SHEET UNTIL YOU ARE ASKED TO DO SO

MHV

Multiple Choice Raw Score: ..... + 10 = ...		Time Taken:	.....
Open Ended Raw Score: ..... + 10 = ...		Time Taken:	.....
TOTAL MHV SCORE:	.....	TOTAL TIME TAKEN:	.....
Percentile: (refer to manual)	.....	Grade: (refer to manual)	.....

SPM

SPM Raw Score: Set A:	.....	TOTAL TIME TAKEN:	.....
SPM Raw Score: Set B:	.....		
SPM Raw Score: Set C:	.....	Percentile: (refer to manual)	.....
SPM Raw Score: Set D:	.....		
SPM Raw Score: Set E:	.....	Grade: (refer to manual)	.....
TOTAL SPM SCORE:	.....		

Prepared by J C Raven, J Raven and J H Court
Published by Oxford Psychologists Press Limited, Oxford, England (Product No: 2256)

SET A: MULTIPLE CHOICE:

In each group of six words below, **carefully** fill in in the blue lozenge ▭ next to the word which is closest in meaning to the word in heavy type above the group. Make sure you fill in **one lozenge only.** If you make a mistake, put a cross (✗) through the incorrect answer and fill in the correct one. If you don't know the answer, have a guess or move on to the next question. The first one has been done for you as an example. Work downwards through each column.

TIME STARTED:

1. **Rage**
- ▭ crease
- ▭ love
- ▭ invite
- ▬ anger
- ▭ rain
- ▭ hoist

7. **Mingle**
- ▭ interfere
- ▭ press
- ▭ mix
- ▭ declare
- ▭ gamble
- ▭ remark

13. **Virile**
- ▭ demanding
- ▭ familiar
- ▭ concise
- ▭ manly
- ▭ vulgar
- ▭ barbarous

2. **Squabble**
- ▭ saw
- ▭ lift
- ▭ bubble
- ▭ photo
- ▭ mould
- ▭ quarrel

8. **Stance**
- ▭ partition
- ▭ fixed
- ▭ glance
- ▭ slope
- ▭ position
- ▭ grief

14. **Surmount**
- ▭ mountain
- ▭ overcome
- ▭ concede
- ▭ descend
- ▭ appease
- ▭ snub

3. **Connect**
- ▭ join
- ▭ field
- ▭ lace
- ▭ bean
- ▭ flint
- ▭ accident

9. **Verify**
- ▭ dedicate
- ▭ confirm
- ▭ chastise
- ▭ change
- ▭ correct
- ▭ purify

15. **Sultry**
- ▭ instinctive
- ▭ solid
- ▭ sulky
- ▭ severe
- ▭ trivial
- ▭ muggy

4. **Provide**
- ▭ harmonize
- ▭ divide
- ▭ hurt
- ▭ commit
- ▭ annoy
- ▭ supply

10. **Formidable**
- ▭ unexpired
- ▭ ravishing
- ▭ feasible
- ▭ orderly
- ▭ tremendous
- ▭ remembrance

16. **Criterion**
- ▭ superior
- ▭ critic
- ▭ certitude
- ▭ standard
- ▭ clarion
- ▭ crisis

5. **Brag**
- ▭ choose
- ▭ boast
- ▭ hope
- ▭ stone
- ▭ lag
- ▭ jerk

11. **Thrive**
- ▭ think
- ▭ try
- ▭ thrash
- ▭ reap
- ▭ blame
- ▭ flourish

17. **Latent**
- ▭ delayed
- ▭ discharged
- ▭ potential
- ▭ overburdened
- ▭ ingenious
- ▭ hostile

6. **Shrivel**
- ▭ linger
- ▭ heed
- ▭ volunteer
- ▭ wither
- ▭ shiver
- ▭ haunt

12. **Docile**
- ▭ meek
- ▭ passionate
- ▭ dominant
- ▭ homely
- ▭ careless
- ▭ dumb

18. **Dwindle**
- ▭ swindle
- ▭ pander
- ▭ linger
- ▭ wheeze
- ▭ diminish
- ▭ compare

19. **Construe**
- prophesy
- interpret
- contradict
- collect
- scatter
- anneal

20. **Efface**
- delete
- rotate
- disgust
- mark
- adjoin
- ascend

21. **Trumpery**
- etiquette
- heraldry
- worthless
- highest
- amusement
- final

22. **Perpetrate**
- appropriate
- control
- propitiate
- deface
- commit
- pierce

23. **Glower**
- scowl
- shine
- disguise
- gloat
- aerate
- extinguish

24. **Sensual**
- controversial
- careful
- necessary
- crucial
- rational
- carnal

25. **Obdurate**
- formidable
- permanent
- hesitant
- stubborn
- exorbitant
- obsolete

26. **Palliate**
- regenerate
- qualify
- alleviate
- imitate
- stimulate
- erase

27. **Adulate**
- increase
- waver
- admire
- prosper
- flatter
- inflate

28. **Felicitous**
- sincere
- faithful
- valedictory
- altruistic
- voracious
- opportune

29. **Ambit**
- talisman
- confines
- armature
- arc
- camber
- ideal

30. **Recondite**
- brilliant
- effervescent
- vindictive
- abstruse
- indifferent
- wise

31. **Cachinnation**
- guffaw
- succour
- conclave
- conjunction
- cunning
- controversy

32. **Exiguous**
- exhausting
- prodigious
- indigenous
- esoteric
- scanty
- expedient

33. **Putative**
- punishable
- computable
- supposed
- worthless
- aggressive
- reconcilable

34. **Manumit**
- manufacture
- liberate
- enumerate
- emanate
- accomplish
- permit

TIME FINISHED:

TOTAL SCORE FOR SET A:

PLEASE TURN OVER

SET B: OPEN ENDED

Write down in a few words, on the blue line, the meaning of each of the following words. If you don't know the meaning of a word, put a question mark and go on to the next one. The first one has been done for you as an example.

TIME STARTED:

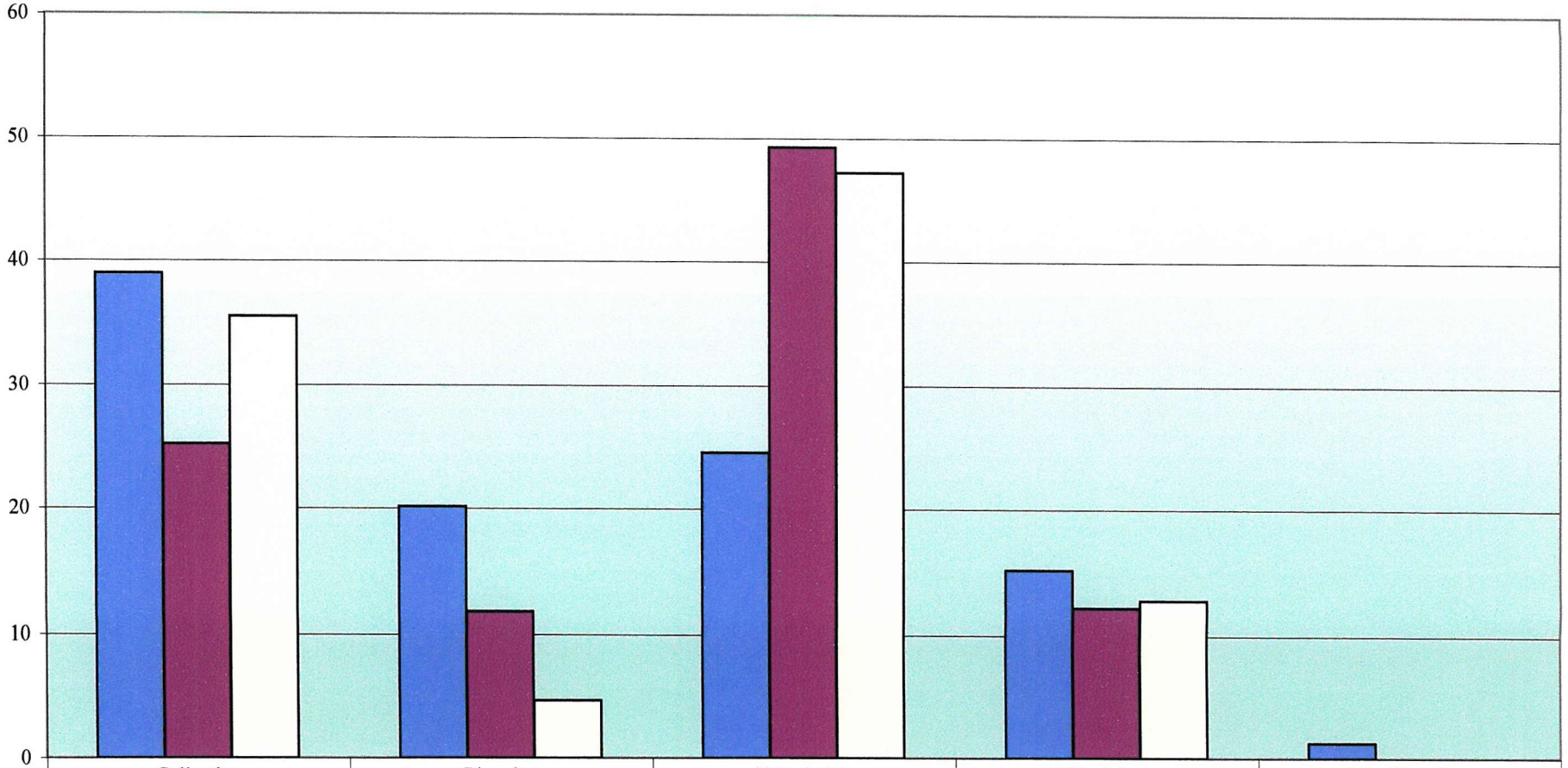
1. Malaria *A sort of fever*
2. Fascinated .....
3. Liberty .....
4. Stubborn .....
5. Precise .....
6. Resemblance .....
7. Anonymous .....
8. Elevate .....
9. Task .....
10. Courteous .....
11. Prosper .....
12. Lavish .....
13. Immerse .....
14. Conciliate .....
15. Envisage .....
16. Amulet .....
17. Garrulous .....
18. Libertine .....
19. Bombastic .....
20. Levity .....
21. Whim .....
22. Ruse .....
23. Recumbent .....
24. Querulous .....
25. Temerity .....
26. Fecund .....
27. Abnegate .....
28. Traduce .....
29. Vagary .....
30. Specious .....
31. Sedulous .....
32. Nugatory .....
33. Adumbrate .....
34. Minatory .....

TIME FINISHED: TOTAL SCORE FOR SET B:

379

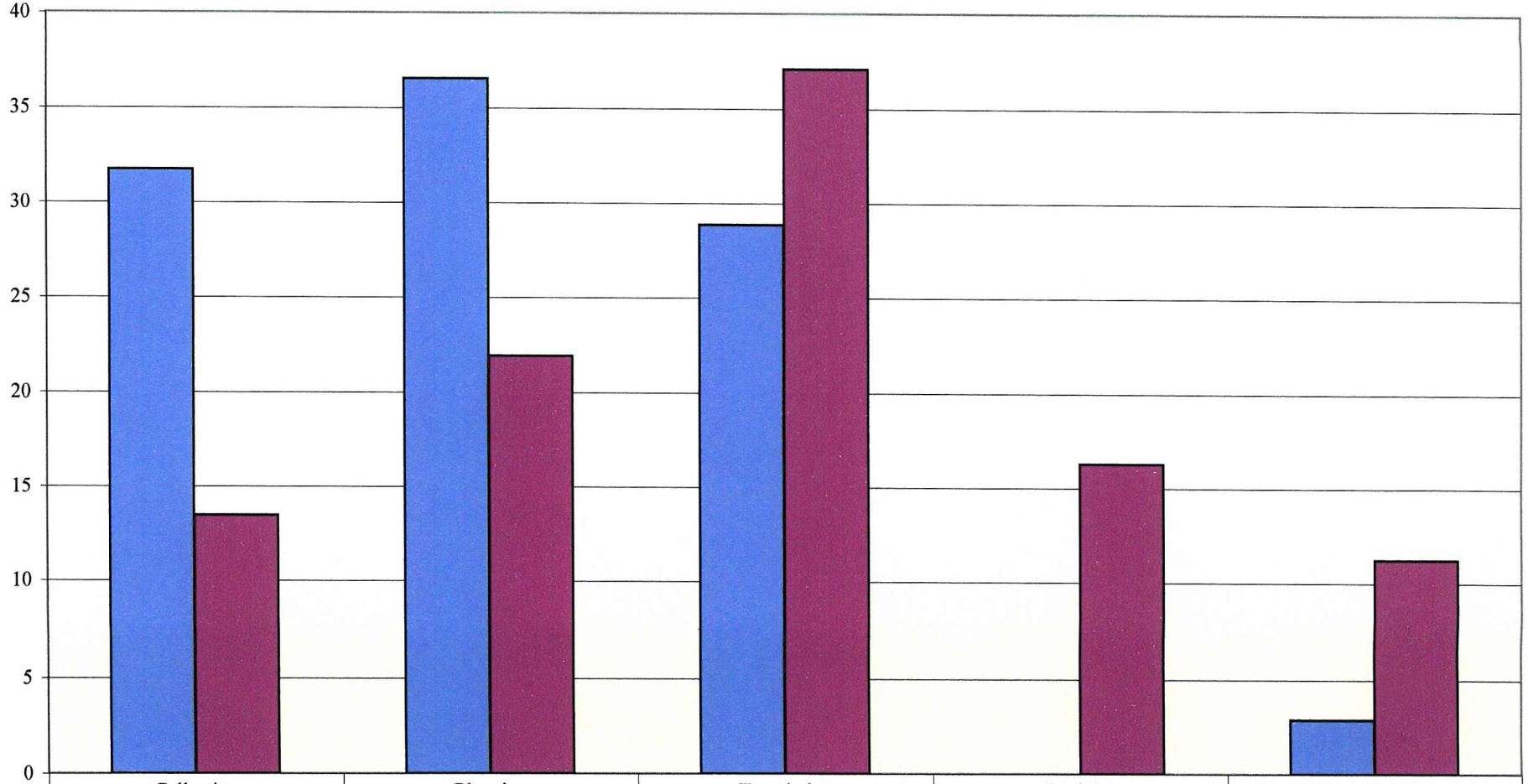
Appendix 5
Writing Process Comparisons by Year Groupings

Writing Component Analysis - Years One & Two



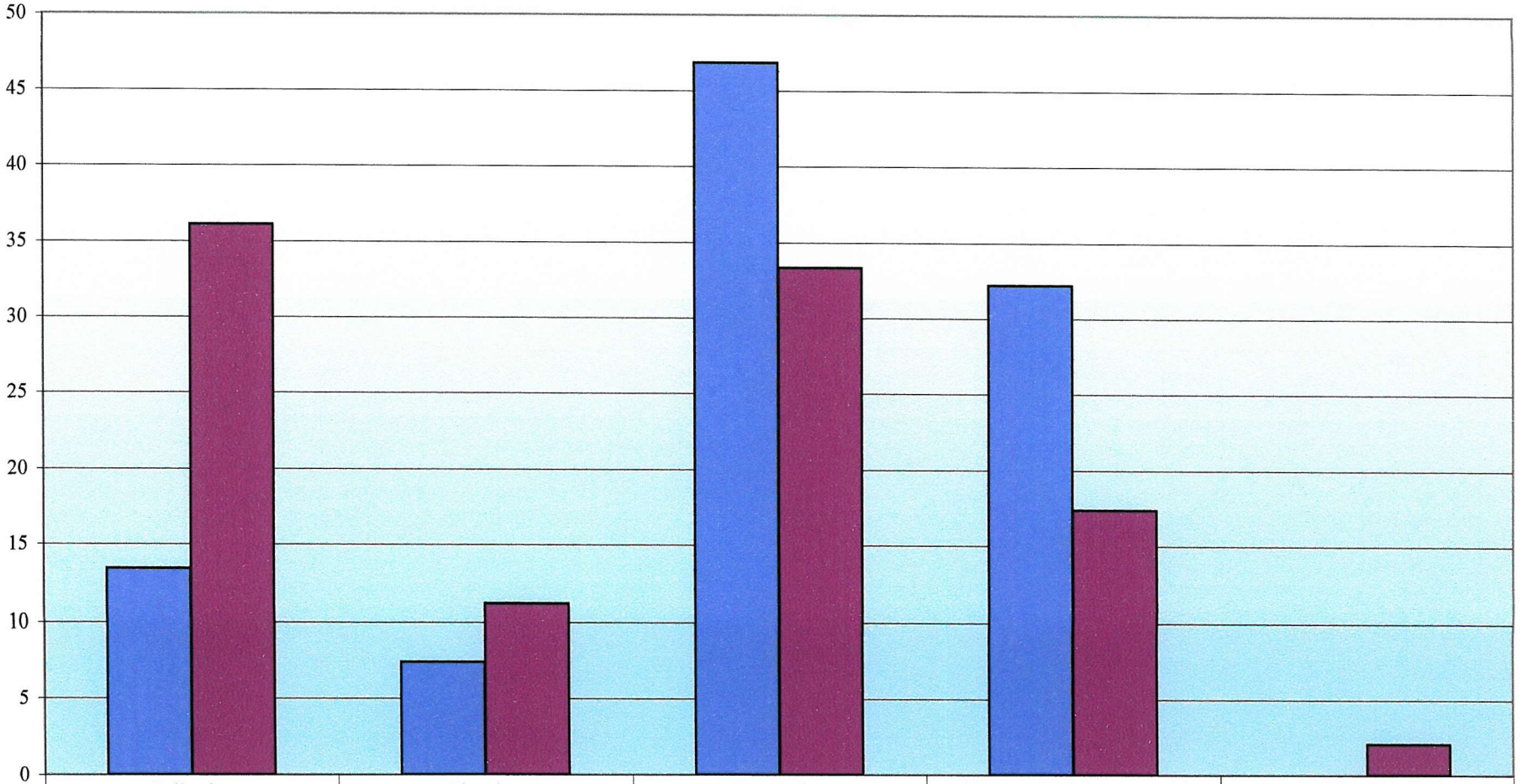
	Collecting	Planning	Translating	Revising	Neat/Proofing
Student A	38.99	20.13	24.53	15.09	1.26
Student B	25.18	11.68	49.27	12.04	0
Student C	35.51	4.67	47.2	12.62	0

Writing Component Analysis - Year Three



	Collecting	Planning	Translating	Revising	Neat/Proofing
Student D	31.73	36.54	28.85	0	2.88
Student E	13.48	21.91	37.08	16.29	11.24

Writing Component Analysis - Post Graduates



	Collecting	Planning	Translating	Revising	Neat
Student F	13.39	7.43	46.85	32.21	0
Student G`	36.11	11.11	33.33	17.36	2.08

Appendix 6
Real Time Writing Log Data Summaries

Student A
Real Time Analysis

Collecting	Planning	Translating	Revising	Neat copying
0.76100629	0.94968553	0.90566038	1	1.13836478
0.00628931	0	0	0	0
0.00628931	0.00628931	0	0	0
0.00628931	0	0	0	0
0.01257862	0	0	0	0
0.00628931	0	0	0	0
0.01257862	0	0	0	0
0.01257862	0	0	0	0
0	0.00628931	0	0	0
0.00628931	0.00628931	0	0	0
0	0.00628931	0	0	0
0.00628931	0.00628931	0	0	0
0.00628931	0.00628931	0	0	0
0	0.00628931	0	0	0
0	0.01257862	0	0	0
0	0.00628931	0	0	0
0	0.01257862	0	0	0
0.00628931	0.00628931	0	0	0
0.00628931	0	0	0	0
0.01257862	0	0	0	0
0.00628931	0	0	0	0
0.01257862	0	0	0	0
0.00628931	0	0	0	0
0.01257862	0	0	0	0
0.01257862	0	0	0	0
0.00628931	0	0	0	0
0.01257862	0	0	0	0
0.00628931	0	0	0	0
0.01257862	0	0	0	0
0.01257862	0	0	0	0
0.00628931	0	0	0	0
0.00628931	0.00628931	0	0	0
0.00628931	0	0	0	0
0.01257862	0	0	0	0
0.00628931	0	0.00628931	0	0
0	0	0	0.00628931	0
0.00628931	0	0	0.00628931	0
0.00628931	0	0	0	0
0.01257862	0	0	0	0
0	0	0.00628931	0	0
0.00628931	0.00628931	0	0	0
0	0.01257862	0	0	0
0	0.00628931	0	0	0
0	0.00628931	0	0.00628931	0
0	0	0	0.00628931	0
0.00628931	0	0	0.00628931	0
0.00628931	0	0.00628931	0	0
0	0	0.00628931	0	0
0	0	0.01257862	0	0
0	0	0.00628931	0	0
0	0	0.00628931	0.00628931	0
0	0.01257862	0	0	0
0	0	0.00628931	0	0

Student A
Real Time Analysis

0	0	0.01257862	0	0
0	0	0.00628931	0	0
0.00628931	0	0.00628931	0	0
0	0	0.00628931	0	0
0	0	0.00628931	0.00628931	0
0	0.00628931	0	0.00628931	0
0	0.00628931	0	0	0
0	0.01257862	0	0	0
0.00628931	0	0	0	0
0	0.00628931	0.00628931	0	0
0	0.00628931	0	0.00628931	0
0	0	0	0.00628931	0
0.00628931	0	0	0.00628931	0
0	0.00628931	0	0	0
0	0.00628931	0.00628931	0	0
0	0	0	0.01257862	0
0	0	0	0.00628931	0
0	0	0.00628931	0.00628931	0
0	0	0	0.00628931	0
0	0.01257862	0	0	0
0	0	0	0.01257862	0
0.00628931	0	0	0	0
0	0.00628931	0.00628931	0	0
0	0	0.00628931	0	0
0.00628931	0	0.00628931	0	0
0	0	0.00628931	0	0
0.00628931	0	0	0.00628931	0
0	0	0.01257862	0	0
0	0	0.00628931	0	0
0	0	0.01257862	0	0
0	0	0.00628931	0	0
0	0	0.01257862	0	0
0.00628931	0	0	0.00628931	0
0	0	0.00628931	0	0
0.00628931	0	0.00628931	0	0
0	0	0.00628931	0	0
0	0	0.00628931	0.00628931	0
0	0	0.01257862	0	0
0	0	0.00628931	0	0
0	0	0.01257862	0	0
0	0	0	0.00628931	0
0	0	0	0.01257862	0.00628931
0	0	0	0	0.00628931

Student B
Real Time Analysis

Collecting	Planning	Translating	Revising	Neat copying
0.78467153	0.91970803	0.52554745	0.91605839	1.03649635
0	0.00729927	0	0	0
0	0.01094891	0	0	0
0	0.01094891	0	0	0
0	0.00729927	0	0	0
0	0.01094891	0	0	0
0	0.01094891	0	0	0
0.00364964	0.00729927	0	0	0
0.00729927	0	0	0	0
0.01094891	0	0	0	0
0.01094891	0	0	0	0
0.01094891	0	0	0	0
0.00729927	0	0	0	0
0.00729927	0	0.00364964	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0	0	0.00729927	0	0
0	0	0.01094891	0	0
0	0.00729927	0.00364964	0	0
0	0.00729927	0.00364964	0	0
0.00364964	0.00364964	0	0	0
0.00364964	0.00364964	0.00364964	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0.00364964	0	0.00364964	0	0
0.00729927	0	0.00364964	0	0
0.01094891	0	0	0	0
0	0	0.00364964	0.00364964	0
0	0	0.00364964	0.00729927	0
0	0.00364964	0.00729927	0	0
0	0	0.00729927	0.00364964	0
0	0.00364964	0.00364964	0	0
0	0	0.00729927	0.00364964	0
0	0.00364964	0	0.00729927	0
0	0	0.01094891	0	0
0	0	0.00729927	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0	0.00729927	0	0.00364964	0
0	0	0.00729927	0	0
0.01094891	0	0	0	0
0.01094891	0	0	0	0
0.01094891	0	0	0	0
0.00729927	0	0	0	0
0.01094891	0	0	0	0
0.01094891	0	0	0	0
0.00729927	0	0.00364964	0	0
0	0	0.00729927	0	0

Student B
Real Time Analysis

0	0	0.01094891	0	0
0.00364964	0	0.00729927	0	0
0.00364964	0.00729927	0	0	0
0.00729927	0	0	0	0
0.01094891	0	0	0	0
0.00364964	0	0.00364964	0.00364964	0
0.00364964	0	0.00364964	0	0
0.00364964	0	0.00729927	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0	0	0.00729927	0	0
0.00364964	0	0.00729927	0	0
0.00364964	0	0.00729927	0	0
0	0	0.01094891	0	0
0	0	0.00729927	0	0
0	0	0.01094891	0	0
0.01094891	0	0	0	0
0.00729927	0	0.00364964	0	0
0	0	0.00729927	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0.00729927	0	0.00364964	0	0
0	0	0.00729927	0	0
0.00364964	0	0.00364964	0.00364964	0
0.01094891	0	0	0	0
0.01094891	0	0	0	0
0	0	0.00729927	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0	0	0.00729927	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0	0	0.00729927	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0	0	0.00729927	0	0
0	0.00364964	0.00729927	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0	0	0.00729927	0	0
0	0	0.01094891	0	0
0	0	0.01094891	0	0
0	0	0.00729927	0.00364964	0
0	0	0	0.00729927	0
0	0	0	0.01094891	0
0	0	0	0.01094891	0
0	0	0	0.01094891	0

Student B
Real Time Analysis

0	0	0	0.00729927	0
0	0	0	0.01094891	0
0	0	0	0.01094891	0
0	0	0	0.01094891	0

Student C
Real Time Analysis

Collecting	Planning	Translating	Revising	Neat copying
0.64953271	0.95794393	0.53271028	0.87850467	1.0046729
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.01401869	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.01401869	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0.0046729	0.00934579	0	0
0	0.00934579	0	0	0
0	0.00934579	0	0	0
0	0.0046729	0.0046729	0	0
0	0.0046729	0.0046729	0	0
0	0.0046729	0.0046729	0	0
0	0.0046729	0.0046729	0	0
0.01401869	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.01401869	0	0	0	0
0	0.0046729	0.0046729	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0.01401869	0	0	0	0

Student C
Real Time Analysis

0.0046729	0	0.0046729	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0.00934579	0	0	0	0
0.0046729	0	0.0046729	0	0
0	0	0.0046729	0.0046729	0
0	0	0.00934579	0.0046729	0
0.0046729	0	0.0046729	0	0
0.00934579	0	0	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0.0046729	0	0.0046729	0	0
0	0	0.00934579	0.0046729	0
0	0	0.0046729	0.0046729	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0.00934579	0	0	0.0046729	0
0	0	0.0046729	0.0046729	0
0	0	0.00934579	0	0
0	0	0	0.00934579	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0	0	0.00934579	0	0
0.00934579	0	0.0046729	0	0
0.0046729	0	0.0046729	0	0
0	0	0.00934579	0	0
0.00934579	0	0	0	0
0.00934579	0	0	0	0
0.0046729	0	0.0046729	0	0
0	0	0.00934579	0	0
0.0046729	0	0.00934579	0	0
0.00934579	0	0	0	0
0	0	0	0.00934579	0
0	0	0	0.00934579	0
0	0	0.00934579	0	0
0.0046729	0	0.0046729	0	0
0.00934579	0	0	0	0
0.00934579	0	0.0046729	0	0
0.0046729	0	0.0046729	0	0
0	0	0.00934579	0	0

Student C
Real Time Analysis

0	0	0	0.00934579	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.00934579	0	0
0	0	0.01401869	0	0
0	0	0.0046729	0.0046729	0
0.0046729	0	0	0.0046729	0
0	0	0	0.00934579	0
0	0	0	0.00934579	0
0	0	0	0.00934579	0
0	0	0	0.00934579	0
0	0	0	0.01401869	0

Student D
Real Time Analysis

Collecting	Planning	Translating	Revising	Neat copying
0.89423077	0.84615385	0.92307692	1.21153846	1.18269231
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0.00961538	0.00961538	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0

Student D
Real Time Analysis

0	0.00961538	0	0	0
0	0.00961538	0	0	0
0.00961538	0	0	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0	0	0.01923077	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0	0.00961538	0	0	0
0	0.00961538	0	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0	0.00961538	0	0	0
0	0.00961538	0	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0.00961538	0	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0	0.00961538	0	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0	0.01923077	0	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0

Student D
Real Time Analysis

0	0.00961538	0	0	0
0	0.00961538	0	0	0
0	0.00961538	0	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0.00961538	0	0	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0
0	0	0.00961538	0	0.00961538
0	0	0	0	0.00961538
0	0	0	0	0.00961538

Student E
Real Time Analysis

Collecting	Planning	Translating	Revising	Neat copying
0.90449438	0.82022472	0.66853933	0.87640449	0.92696629
0.00561798	0	0	0	0
0.01123596	0	0	0	0
0.01123596	0	0	0	0
0.01123596	0	0	0	0
0	0.00561798	0	0	0
0.01123596	0	0	0	0
0.00561798	0.00561798	0	0	0
0	0.01123596	0	0	0
0	0.01123596	0	0	0
0	0.00561798	0	0	0
0	0.01123596	0	0	0
0	0.01123596	0	0	0
0	0.01123596	0	0	0
0	0.00561798	0	0	0
0	0.01123596	0	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0	0.00561798	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0	0.00561798	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0.00561798	0.00561798	0	0
0	0.00561798	0.00561798	0	0
0	0	0.00561798	0	0
0	0.00561798	0.00561798	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0	0.00561798	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0.01123596	0	0	0
0	0.00561798	0	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0	0.00561798	0.00561798	0
0	0	0.00561798	0	0
0.00561798	0	0.00561798	0	0
0.01123596	0	0	0	0

Student E
Real Time Analysis

0.01123596	0	0	0	0
0.01123596	0	0	0	0
0.00561798	0	0	0	0
0.00561798	0.00561798	0	0	0
0.00561798	0.00561798	0	0	0
0.00561798	0.00561798	0	0	0
0.00561798	0.00561798	0	0	0
0	0	0	0.00561798	0
0	0.01123596	0	0	0
0.01123596	0	0	0	0
0	0.01123596	0	0	0
0	0.00561798	0	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0.00561798	0.00561798	0	0
0	0.00561798	0.00561798	0	0
0	0	0.00561798	0	0
0	0.00561798	0.00561798	0	0
0	0	0.01123596	0	0
0	0	0.00561798	0.00561798	0
0	0	0.00561798	0	0
0	0.00561798	0.00561798	0	0
0	0.00561798	0.00561798	0	0
0	0	0.01123596	0	0
0	0	0.01123596	0	0
0	0.00561798	0	0	0
0	0.00561798	0.00561798	0	0
0	0.00561798	0.00561798	0	0
0	0	0	0.01123596	0
0	0	0.00561798	0	0
0	0	0.00561798	0.00561798	0
0	0	0	0.01123596	0
0	0	0	0.01123596	0
0	0	0	0.01123596	0
0	0	0	0.00561798	0
0	0	0	0.01123596	0
0	0	0	0.01123596	0
0	0	0.00561798	0.00561798	0
0	0	0.00561798	0	0
0	0	0	0	0.00561798
0	0	0	0	0.01123596
0	0	0.00561798	0.00561798	0.00561798
0	0	0	0	0.00561798
0	0	0	0	0.01123596
0	0	0	0	0.00561798

Student E
Real Time Analysis

0	0	0	0	0.01123596
0	0	0	0	0.01123596
0	0	0	0	0.01123596
0	0	0	0.01123596	0
0	0	0	0.01123596	0
0	0	0	0.01123596	0
0	0	0	0.01123596	0
0	0	0	0	0.00561798
0	0	0	0	0.01123596
0	0	0	0	0.01123596
0	0	0.00561798	0	0.00561798
0	0	0	0.01123596	0

Student F

Real Time Analysis

Collecting	Planning	Translating	Revising	Neat copying
0.90540541	0.96396396	0.56981982	0.71396396	1.03828829
0.00900901	0	0	0	0
0.00900901	0	0	0	0
0.01126126	0	0	0	0
0.00900901	0	0	0	0
0.01126126	0	0	0	0
0.00900901	0	0	0	0
0.01126126	0	0	0	0
0.00900901	0	0	0	0
0.00900901	0	0	0	0
0.01126126	0	0	0	0
0.00900901	0	0	0	0
0.0045045	0.0045045	0.00225225	0	0
0	0	0.0045045	0.0045045	0
0	0	0.00675676	0.0045045	0
0	0	0.00900901	0	0
0.00675676	0	0	0.0045045	0
0	0	0.00900901	0	0
0	0	0.00225225	0.00675676	0
0.00225225	0	0.00675676	0.00225225	0
0	0	0	0.00900901	0
0.00225225	0.00225225	0	0.00675676	0
0.0045045	0.0045045	0	0	0
0.0045045	0.00225225	0.0045045	0	0
0	0.00900901	0	0	0
0	0.01126126	0	0	0
0	0.00900901	0	0	0
0	0.00900901	0	0	0
0	0	0.00900901	0.00225225	0
0	0	0.0045045	0.0045045	0
0	0	0.01126126	0	0
0	0	0.00675676	0.00225225	0
0	0	0.00675676	0.0045045	0
0	0	0.00675676	0.00225225	0
0	0	0.00225225	0.00675676	0
0	0	0.00225225	0.00900901	0
0	0	0.00225225	0.00675676	0
0	0	0.0045045	0.00675676	0
0	0	0.0045045	0.0045045	0
0	0	0	0.01126126	0
0	0	0.0045045	0.0045045	0
0	0	0.0045045	0.00675676	0
0	0	0.00675676	0.00225225	0
0	0	0.00900901	0	0

Student F
Real Time Analysis

0	0.00225225	0.00675676	0.00225225	0
0	0	0.00900901	0	0
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Student F
Real Time Analysis

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Student G
Real Time Analysis

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Student G
Real Time Analysis

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Student G
Real Time Analysis

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Appendix 7
Samples of Student Written Work

JI 100

Foundations of Sport Assessment

Exercise Physiology:

Reaction Paper

Physiology is a broadly used term, which can be broken up into three categories, human physiology, exercise physiology and sports physiology. Human physiology is concerned with body function and can be defined as, 'how our organ systems, tissues and cells work and how their functions are integrated to regulate our internal environments.' Exercise physiology is defined as 'the study of how our bodies' structures and functions are altered when we are exposed to acute and chronic bouts of exercise'. Finally there is sports physiology, which applies the concepts of exercise physiology to training the athlete and enhancing sports performance. ('Foundations of Sport', physiology lecture notes, 2000).

In this assessment two journal articles are too be analysed, the first referring to the field of human physiology, ('From the 'American Journal of Physiology') and the second relating to the area of sports physiology. (From the 'Journal of Sports Sciences')

The human physiology investigation was prompted by recent observations that the protein GLUT – 1 (important in transporting glucose supplies in immature and regenerating muscles) is expressed in foetal muscles, but not in adult muscles. There has however, been a connection with the expression of GLUT – 1 in human adult muscle fibres when exposed to metabolic and pathophysiological stress. In this article an experiment was carried out to see if GLUT – 1 expression could be reactivated by exposing adult muscle fibres to the above stresses.

The following subjects were chosen:

- Eight, Non-insulin-dependant diabetes mellitus patients, (NIDDM) age 54+/-1.
- Eight, Obese subjects, non-diabetic, age51+/-2.

- Eight, Amyotrophic lateral sclerosis patients, (ALS) age range 49-75 years.

Muscle fibres from these subjects under went myogenous reconstruction. The biopsies were obtained according to the method of Bergstrom. Immunocytochemistry was used to bypass problems inherent in techniques of tissue homogenates. After the muscle fibres had been exposed to various solutions (antibodies within the solution reacted to produce a stain if GLUT-1 was present) and temperatures, they were viewed using enhance tyramide signal amplification. (M.Gaster, J.Franch, P.Staehr, H-Beck-Nielsen, T.Smith, and H.D.Schroder, pages 1191-1195, 2000)

The sports physiology article describes an investigation of which the main aim was to compare left ventricular characteristics of female rowers, canoeists and cyclists with those of untrained controls, whilst minimising the effects of variables such as those created by absolute body dimensions. This was done by using appropriate allometric scaling and finding athletes of a similar age, weight and competitive standard, (all athletes had competed nationally and/or internationally for a minimum of two years). The impact of left ventricular structural alterations on systolic and diastolic function was also determined. From previous investigations carried out on male populations, such athletes had demonstrated significant increases in left ventricular wall thickness and cavity dimensions. As a consequence a similar pattern was also expected in their female counterparts.

For this investigation a total of 57 subjects were used, 21 used as controls and the remaining 36 consisted of an equal split of rowers, canoeists and cyclists. The controls were not engaged in any organised training programme and any self reported recreational activity was limited to one to two hours per week. The rest of the subjects undertook what was primarily an endurance

based training regime, each session lasting between 50 +/- 15 minutes, carried out 8 +/- 2 times per week. Then using a combination of procedures, including ultrasound, an echocardiogram and some clinically recognised cardiology formulas, the average results of four different ventricular dimensions were collected:

1. Left ventricular internal dimensions (mm) in diastole and systole.
2. Septal wall thickness (mm) in diastole and posterior wall thickness in systole.
3. Left ventricular (diastole) mass (g)
4. Left ventricular end-diastolic volume (ml).

These figures were then plotted on to graphs and statistically analysed to show if any differences seen were significant. (Keith P George, Philip E. Gates, Karen M. Birch and Ian G. Campbell, 1999, p.633-642)

Differences seen between the two investigations go beyond that of, one being related to human physiology and the other to sports physiology. The results expected in the first investigation were all or none (i.e.GLUT-1 was either going to be present within the muscle, or not present) and as a result the hypothesis was not quantifiable. In the sports article, previous investigations upon male athletes meant that the expected increases in ventricular dimensions could be quantified.

Due to the nature of the sports investigation it meant that only female subjects could be used, whereas in the human physiology experiment an equal number of female and male subjects took part. Both of the investigations limited the variables in similar ways. This was done by finding subjects of comparable ages, (with the exception of ALS patients) physical condition and using

appropriate and recognised experimental techniques such as allometric scaling and immunocytochemisty. The number of subjects used was also similar, twelve for each sport and eight for each physical condition. In the case of the human physiology article, there was no direct comparison between the different groups under investigation and therefore no need to involve a control group. In the sports related experiment it would not have been possible to attribute any changes found in ventricular dimension solely to the training, without a control group.

Obtaining results by measurement, such as the ventricular dimensions can lead to a source of error within the experiment. It does however enable the results to be mathematically tested to see if they are statistically significant. This was not possible within the investigation concerning the protein GLUT-1.

Results of the human physiology experiment

The muscle fibres from the ALS patients induced the expression of GLUT-1. The other stress conditions had no positive effect on the production of the GLUT-1 protein.

Results from the sports physiology experiment

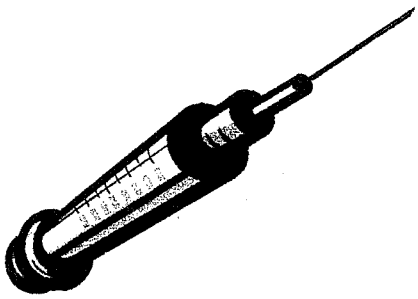
- Left ventricular internal dimensions (mm) in diastole and systole, increased significantly in all groups compared to that of the controls
- Septal wall thickness (mm) in diastole and posterior wall thickness in systole, increased significantly in all groups compared to that of the controls.

- Left ventricular (diastole) mass (g), increased significantly in all groups compared to that of the controls.
- Left ventricular end-diastolic volume (ml), increased significantly in all groups compared to that of the controls.

The low number of subjects used in both experiments would have reduced the validity of the results found. This could have been improved by increasing the number of participants.

I believe that the sports physiology experiment is the superior of the two. It has used a sound methodology and provided quantifiable results that are statistically significant and can now be applied to training and enhancing sporting performances among athletes. In contrast the human physiology investigation only showed whether GLUT-1 could be produced in adult muscle fibres and offered no further information.

Should I give My child the MMR vaccine?



Student Number **00179612**

H12

INTRODUCTION

Many of the diseases that are preventable by vaccines are now rare; this means that parents have little experience or knowledge of the diseases and their potential harm. In this essay, I plan to discuss the diseases immunised by the MMR vaccine, the consequences that may occur because of non-immunisation and finally a conclusion including my personal opinions. There are many topics arising from this subject, this essay cannot cover all in depth so I have chosen to include those I believe to be the most relevant.

Should I give my child the MMR vaccine?

MMR stands for Measles, Mumps and Rubella; the vaccination immunises against all. To start I would like to discuss each disease to maintain a basis for discussion later.

Measles has several features; nearly all infected individuals become unwell and develop symptoms (most other viral infections undergo an asymptomatic or subclinical infection). After infection there is complete resistance to re-infection. It is also highly infectious and nearly all susceptible children that come into contact with the virus will develop the disease. Transmission takes place readily via respiratory droplets, which are soon inactivated as they dry on the surface of skin, but are very stable suspended in air. The virus is inhaled and enters the body at the upper or lower respiratory tract. It then spreads to subepithelial and lymphatic tissues without causing detectable symptoms, the virus slowly spreads and multiplies elsewhere in the body. After roughly a week the virus enters the blood and clinical signs soon appear. The patient becomes unwell about 9-10 days [1] after initial infection. Acute respiratory illnesses with runny nose, fever, cough, conjunctivitis and Kopliks spots inside the cheek (which go on to form a maculopapular rash) are all features of the disease. Complications of measles include opportunistic bacterial infections, especially pneumonia as a result of virus damage to respiratory surfaces and Encephalitis (inflammation of brain), both of which can be fatal but rare in these times in the United Kingdom. In other countries, unfortunately, it is a

different story. Where there is poor medical care and malnutrition, measles is a more serious disease with numerous complications and in many cases is fatal. This is attributed to poor mucosal defences, poor medical services, high levels of bacterial contamination and exposure to a larger dose of the disease due to lack of vaccination and hence the breakout of epidemics. Measles has killed a quarter of a million children [2] in England and Wales this century, but such deaths in the United Kingdom are now rare. Improvements in living standards have reduced the mortality from infectious diseases, but immunisation has played a large part in the reduction of disease incidence as will be discussed later. In unvaccinated populations, outbreaks can occur every few years [2] when the number of susceptible children reaches a high enough level.

Mumps is also a virus that spreads via airborne droplets, in addition salivary secretions and possibly urine. Intimate contact is necessary either in school (peak incidence is at 5-14 years old [1]) or in crowded adult communities e.g. prisons and ships. The virus enters the body at the upper respiratory tract and then spreads systemically, undergoing a growth period in the lymphoid tissues. After 7 – 10 days [1] the disease enters the blood and after 18 –21 days [1] the disease starts to show its symptoms (e.g. inflammation of salivary glands.) Complications may include meningitis (occurring in 10% of cases [1]), epididymo-orchitis (makes testis painful and is common in 20% of adult males [1]), pancreatitis, thyroiditis, myocarditis and arthritis (all of last 4 are rare). Mumps is less life threatening than measles; the complications are not as serious and so the number of deaths lower.

The rubella virus infection causes a multisystem infection, but its main impact is on the foetus. It is transmitted by droplets and is less contagious than measles, but more so than mumps. The virus enters the body via the respiratory tract and grows for a period of time in the lymphoid tissues, which is followed by a spread to the spleen. After approximately one week[1] further multiplication in the tissues leads to localization of the virus in the respiratory tract, skin, placenta, joints and kidney. Symptoms include mild sore throat, cough, rash and

foetal damage. A foetus is particularly susceptible to the rubella infection when the maternal infection occurs during the first three months of pregnancy, as at this time the heart, brain, eyes and ears are being formed. If the foetus survives it may show certain abnormalities e.g. deafness.

Now that we have discussed the particular diseases, it is important to look at vaccines in general and specifically for MMR. Vaccination aims to prime the adaptive immune system to the antigens of a particular microbe. The most ambitious aim of vaccines is the eradication of disease. The MMR vaccination is one that contains live attenuated virus and is given in two doses, one at 13 months and the second between 4 – 5 years of age [3]. In general, many [2] say that some infectious diseases were on the decline before the relevant vaccines were produced so how can it be certain that immunisation has had any effect. Several disease outbreaks have occurred in otherwise healthy unimmunised communities for example in the past twenty-five years two outbreaks of polio occurred in an unimmunised religious community in the Netherlands [4]. In neither case did the disease spread outside the community. When a large number of those affected by a disease have been immunised it is said that the vaccine is not efficacious. However, unless the vaccine is given to all and it is 100% effective there will always be an affected number of immunised people. The number of immunised and nonimmunised people affected depends on the efficacy of the vaccine. For example (using a random percentage just for illustration purposes) if the vaccine is 80% efficient in leading to immunity and 80% of population is immunised then only 64% will actually develop effective antibodies and thus 36% of the population will be at risk of the disease. As the MMR vaccine is given in two doses (as it is not 100% efficient) when a second dose is given, using the figures above a further 80% of the population that did not develop antibodies from the first vaccination (36%) will develop immunity, giving a total of 92.8% immunised and 7.2% with no antibodies. Due to concerns about the safety of the MMR vaccine (which will be discussed later) the number of vaccinations has dramatically fallen in recent years [5]. The number of

children who are given the second dose of the vaccine is very low and there have been a number of reasons put forward by general practitioners to explain this [5]:

- Injections to preschool children may be distressing for the child and parent.
- Concern expressed by parent about mild reaction (fibril) from first dose.

There are a few circumstances when immunising a child is not pheasable, including acute illness, serious reaction to a previous dose, neurological problems, and immunosuppressant conditions. Other than these, there are no government medical recommendations for not vaccinating a child. However there are parents who believe that there are ways of protecting a child against infection that work equally well as vaccines, one of them is homeopathy. There is no evidence that homeopathy can prevent a child from becoming infected with a disease that is preventable with a vaccination or that it can reduce severity. Many parents have asked why they cannot have each disease vaccinated by a single vaccine instead of having the MMR vaccine. By separating the vaccines the immune response is substantially, lower so there is not a "kick" of the immune system forcing the antibodies to be made. There is a case currently being investigated [6] by the GMC (general medical council) in which a doctor has given his patients single vaccine, putting their health and potentially the country's at risk. This practice is not acceptable in the United Kingdom. If the vaccinations were to change to separate vaccines, it would be admitting there is a problem the MMR vaccine, thus forcing the public to loose faith more so. Separate vaccines would mean 3 sessions of injections rather than the 1, is this cost and time effective? I suggest not. The trauma factor of 3 injections would also be high.

Many conditions are claimed to be consequences of the MMR vaccine. They include autism and inflammatory bowel diseases. To understand the research into these claims we first need to appreciate each condition. Approximately one half of autistic children develop normally until the age of between 1.5 years old to 3 years old [7]; then the autistic symptoms begin to emerge. These children are often referred to as having regressive autism. During childhood,

autistic children may fall behind their same aged peers in several areas such as communication and social skills. Examples of inflammatory bowel disease include Chrohns disease (inflammatory conditions of the small bowel) and Ulcerative Colitis (inflammation of the large intestine). Chrohns disease may affect any part of the bowel but it is most common in the terminal ileum. It causes bowel wall inflammation, ulceration and thickening together with obstruction. It is not as common as the second major form of chronic inflammatory bowel disease, ulcerative colitis. Ulcerative colitis is primarily a rectal disease but may extend to involve the colon. The incidence of autism, Chrohns disease and ulcerative colitis in children in the United Kingdom has increased over the past decade [7]. There are concerns about a possible relationship between them and the MMR vaccine, which were triggered by a report [8]. The report was based on a case series of children who presented with developmental regression associated with diarrhoea and abdominal pains. It was hypothesised that the MMR vaccine could trigger an intestinal inflammatory response that could be associated with developmental regression in previously normal children. In another study, [9] there was an increase in the number of cases of autism but the authors did not find any difference in the age at diagnosis between the vaccinated and unvaccinated. Coinciding with this study, Kaye [13] performed a data analysis from the United Kingdoms general practice research database to evaluate the relationship between autism and the MMR vaccine administration. No evidence was found to support a correlation between the prevalence of MMR immunization and the increase in the number of cases found. The first dose of the MMR vaccine is usually administered to children at the same time as the diagnosis of autism (it is difficult to diagnose in the first year of life), this is why these claims have been made, and from them stemmed another association between the inflammatory bowel diseases and the MMR vaccine. Having looked at the diseases involved, the vaccine and the consequences claimed, it would now be interesting to look at the opinion of health professionals on the question – "Should I

a possible explanation

give my child the MMR vaccine?" A list below shows collated information on the opinion of health professionals [5].

- 48% of all health professionals had reservations concerning the giving of the MMR vaccine.
- 61% of health visitors felt confident about explaining the reason why MMR is given in two doses.
- 54% of general practitioners did not feel confident about explaining the reason why MMR is given in two doses.
- 33% of nurses stated that the MMR vaccine was likely or possibly associated with Crohns disease.
- 27% of nurses state that the MMR vaccine was likely or possibly associated with autism.

The general opinion of health professionals and the GMC is that the MMR vaccine has no "side effects" and they believe that it is a good idea to immunise children using it. The statistics above [5] do show though that more education for health professionals on the MMR vaccine is needed in order to allow them to educate parents correctly, which at the moment some do not appear to feel able to do.

Many Doctors [5] are concerned that the reduced risk of infectious diseases in Britain has led to people focusing on the risks of vaccination. Many parents do not know the disability that can be associated with rubella and the complications of measles. Parents' reasons [5] for not choosing vaccination include:

- *The disease is not serious* – but measles for example, can kill healthy children.
- *The disease is uncommon* – however diseases such as measles are common in unimmunised populations and are easily spread worldwide.
- *The vaccine is ineffective* – but trials have proven how effective they are [10].

- *Other methods of disease prevention, such as homeopathy, are preferable to immunisation* – discussed above.

In some parts of the United Kingdom, the number of vaccinated children has fallen to 75%[5]. It is thought that this is below the "herd immunity level". "Herd immunity" is the concept that not everybody in a population has to be immunised to protect everyone in that population. As long as a sufficient number of children are immunised against it, protection will be conferred on everybody. The percentage of the population that must be immunised depends on the infectivity of each disease, the vulnerability of the population and environmental factors. On average, to achieve 100% protection against measles in the United Kingdom the uptake of immunisation must be about 95%[11] (whereas in India uptake has to reach about 99%). This shows that the current vaccination level is 20% below what it should be to prevent an epidemic.

The loss of faith in the MMR vaccine may be attributed to the way the media has chosen to give the public limited information. The media seem to focus on the negative aspects that may follow if a child is vaccinated with the MMR vaccine. They do not tend to discuss the possible consequences of not immunising nor do they discuss the potential harm, collectively, it can do to the country. The latest media scare about the MMR vaccine has left doctors fighting to minimise the damage to vaccine uptake rates. Unfortunately, as we can see by the figures above, this battle is currently being lost.

If we look at the worldwide picture, 35 European countries now use the MMR vaccine[13]. In America, a child cannot go to school unless fully vaccinated and so, Americas vaccination uptake rates of MMR are higher[12]. Japan is the only country that recommends single measles vaccine; between 1992 and 1997 there were 79 deaths from measles in Japan, whereas there were none in the United Kingdom. There have been study's in Finland on the MMR vaccine [13], 1.8 million people were involved with this study. The conclusion was that there was no

link between the MMR vaccine and the conditions above (no cases of inflammatory bowel disease or autism were detected).

The United Kingdom started a campaign in 2000 to reassure parents about the safety of the MMR vaccine. It was a £3-million multimedia campaign and the results of this are yet to be seen.

CONCLUSION

There is no evidence that the MMR vaccine causes autism or any kind of inflammatory bowel disease, it is currently just speculation and a coincidence of facts. For example, reasons why autism has risen in the last 10 years could include:

-Parents are now more aware of autism and the symptoms.

-Another environmental factor could be involved e.g. diet.

-All diseases go through a natural fluctuation.

e.g. 1930's-50's there was a lot of peptic ulcer disease.

Parents do not have the facts explained to them by their health professionals, which is probably half the problem. If health professionals were educated fully they could do this and so reduce the number of objectors to the MMR vaccine. What started as a few people with an objection has cascaded (because of lack of education) into a public opinion. If everybody was aware of all the facts I am sure they would see that the pro's of immunisation outweigh the con's, this is my opinion. I believe that unless there is condemning research (which currently there is not), immunisation should become compulsory in the United Kingdom, or else we could find ourselves in the middle of an epidemic. Looking at Japan for instance, they recommend single vaccines, but they have had numerous deaths, do we really want this to be us in ten years time? I suggest not! Unnecessary.

I do not have children, but I have pushed for my niece and nephew to be vaccinated with the MMR vaccine, and would certainly have my own children vaccinated without reservation.

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How can museums respond to the needs of audiences from diverse ethnic and cultural backgrounds?

There is a great need in museums today to recognise different cultures and origins, as the world is becoming a very diverse ethnic and cultural place. Even Nelson Mandela in a speech on Heritage Day in 1997, called on museums to stop representing African people as 'lesser beings' (Davison 2001:7). The main problem museums face tackling, is their image, where people have a stereotype of what they contain and so would not venture into one. There is often discrimination in the displays whether on purpose or not, and cultures lose their individual identity when forced into a small display. I plan to fully understand these problems and by finding solutions, will be able to answer the question.

Museums have always had a bad image that they have found very hard to shift, such as most people associating them with middle class white people. The exhibits are often thought of as boring; this may explain why *' museum visitors typically stand for no longer than twenty to forty seconds in any one place, avoid reading most labels in an exhibit, and steadily reduce the attention they devote to exhibits and labels the closer they come to exit signs, a phenomenon referred to as the 'exit gradient'* (Brown 1978, cited in Ames 1992: 105). The museums are thought to be irrelevant to many ethnic groups, as displays appear to be of more relevant to the middleclass whites. Ian Hodder carried out a survey in Britain and found that the higher status the person had, the more important they thought the past was; and that middle aged people thought that the past was more important to know about, compared to other age ranges (Merriman 1991). He however did not define his classes into ethnic groups, yet this does show how museums do not have a wide distribution for an audience. The problem probably lies with the diverse ethnic cultural people assuming that the museums are of no relevance to them.

In the past there has been much discrimination in museums against people who were thought to be non-western. When museums first opened their exhibits, they were laid out to show how great the western world was, despite their displays being made-up of many looted artefacts. Objects were shown from 'less civilised' places, but only to emphasise how great the nation or western world was. Cultures however unique were placed together in displays where their identity had been not studied or understood, so became almost a novelty. The Pitt Rivers Museum is a classic example where thousands of cultures have been represented in displays by artefact type, laid out in the most primitive to the most civilised. It is impossible to understand a culture if all its artefacts are taken from the people and separated, to be placed out of context. *'One can argue that the Pitt Rivers Museum was implicated in other discourses of 'self' and 'other' which produced a division between geographically distanced cultures, but also between the cultures of the different classes of British society'* (Lidchi 1997: 191).

There is no single solution that will solve all these problems, but many different changes can be made to attempt to cure these problems. The most straightforward solution is to involve local people, or those whom the museums are trying to reach. Having activities that involve people, and finding information from the actual descendents can do this. An example of this is at Beamish Museum:

'In evoking past ways of life of which the visitor is likely to have had either direct or, through parents and grandparents, indirect knowledge and experience, the overwhelming effect is one of an easy-going at-homeness and familiarity' (Bennett (1995: 118).

If the people are involved in planning the exhibitions, then it is more likely that it will be of relevance to them, and they will be able to help build representations of their past. This should help to eliminate some bias, yet it is not always simple for the academic groups and the diverse groups to work together. An example of this is the debate between many people including Tim Sebastian an Arch-Druid and David Miles the Chief Archaeologist of English Heritage, in 2001. They seemed to agree at the end of the debate that David would discuss some of Tim's ideas yet this never happened (Wallis et al 2001). This lack of working with diverse parties and lack of discussing their ideas means that it will be very hard for the museums to attract people from these groups. It is very important that museums have special exhibitions that deal with different cultures and groups, which are specific and not general. For example The Museum of London held an exhibition dedicated to the people of London. This is an attempt to provide an exhibit that was actually personal to the people of London and for them. Most of the museums in London are about the Nation as a whole or about royalty and famous London sites. The museum decided to gather information from the people '*as so much community history has not been written down, but resides in people's heads,*' so *'over a hundred hours of tape recordings of personal testimony were made'* (Hebditch 1993)

It is one thing to make the exhibits more personalised to the audience that they are trying to reach, but the people do not necessarily know about the exhibition and so would still have their past preconceptions about what a museum is like. Museums have to make more of an effort to advertise themselves. They are indeed a leisure pastime for many people and so need to gather people's attention. It may appear to be commercialisation but unfortunately people may not even consider going to a museum unless a poster, or some other kind of advertisement influences them otherwise. Phillips had a good idea to have an exhibition in Africa that travelled round the country taking the art exhibition to the people, this however involved arguments with the British Museum who would not lend artefacts until the African government okayed exhibiting looted items (Shaw & MacDonald 1995). This leads onto another problem of looting, many people may not visit a museum such as the British Museum as they believe it is wrong in how it has acquired many of it's artefacts. Unfortunately this problem with never go away, as every museum wants to have the most important glamorous objects it can in it's collection; mainly as it believes this is the only way it can gain a visiting public. I think it is important for museums to note on an artefact on display where exactly it came from and how it was acquired. Indeed some museums do this, such as local museums where local people have donated their heirlooms and collections; yet many artefacts whose origins are dubious are often left unlabelled.

Museums are still fighting to get out of their colonial image where they portrayed different cultures as barbaric, uncivilised and primitive. The South Africa Museum had this problem, as all it's displays were diminutive of the bushman culture and society. As Davison said *'by the early 20th century, racial stereotypes were already embedded in the popular imagination, and the classificatory schemes that underpinned the practice of ethnography in museums confirmed and legitimised theories on race and culture that were later discredited'* (Davison 2001: 4).

To answer the question I think that museums have to try and shift their image from being for white middleclass western colonialist, to being for everyone. New unique exhibitions have to be put together about different cultures and groups, and the only way to make these exhibitions personal to these groups (in order to gain their interest) is to involve the specific people in the planning and preparation of the exhibits. They have to try and label objects more truthfully so that the idea of them being looters can be taken away. Most

museums need to be 'revamped' to move on with the times and the changes in society. However, this alone is not enough, they can change as much as they like on the inside, but that does not mean that they will be able to attract more people from varied backgrounds. Museums need to reach out into the communities they are trying to gain interest from; this can be done by advertisements and also by education. Many museums do run activity days, but it is not always relevant to the local people. Research has to be done to see what people actually want to learn and know about. I would say that the only way museums can respond to the needs of different audiences is to change their appearance to meet the needs of this audience, and then reach out to the audience in order to gain their support and attention.

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The Convention on Biodiversity: The Biosafety Protocol

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B.16

Modern biotechnology over the last 30 years has enabled the genetic and biochemical modification of plants, animals and micro-organisms to create genetically modified organisms (GMOs). The majority of countries with biotechnology industries have domestic legislation in place intended to ensure the safe transfer, handling, use and disposal of GMOs and their products. These precautionary principles are collectively known as "biosafety". Until the Montreal talks in January 2000 there was no legally binding international agreement on Biosafety.

Aims of the Biosafty Protocol

Biosafety Protocol was adopted as a supplementary agreement to the Convention on Biological on 29 January 2000. It's aim is to protect biological diversity from potential risks posed by applications of modern biotechnology. It seeks to provide countries with the information necessary to make informed decisions before agreeing to the import of such modified organisms. The Protocol has the stated desire to anticipate and prevent rather than react reaffirming precautionary approach of principle 15 of the Rio Declaration on Environment and Development and the precedent of the Un convention on the law of the sea.

History of the Protocol on Biosafety

The initial text of the Convention had anticipated the need for legislation in Articles 16 and 19 of the CBD.

Article 16 deals with access to and transfer of technology it can be summarised into five main points.

1) Access and transfer of technology including biotechnology are essential elements for the attainment of the objectives of this Convention where such technologies are relevant to the conservation and sustainable use of biological diversity.

2) Access to and transfer of technology may be provided on favourable or confessional terms but must be provided in a manor that is consistent with the adequate and effective protection of intellectual property rights.

3) Parties are required to facilitate the use of genetic resources by providing technology on agreed terms and national level legislation and administrative policies.

4) To provide private sector facilitates joint development and transfer of technology for the benefit of both governmental institutions and the private sector.

5) Patents and other intellectual property rights may have an influence on the implementation of this Convention, shall cooperate in order to ensure that such rights are supportive of and do not run counter to its objectives.

Article 19 on the handling of Biotechnology and distribution of its benefits requires:

1) Participation in biotechnological research activities, especially in developing countries, which provide the genetic resources for such research.

2) Measures to promote fair and equitable access to benefits arising from biotechnologies based upon genetic resources on mutually agreed terms.

3) The consideration of the need for a protocol setting out appropriate procedures for, advancing informed agreement, the safe transfer, handling and use of any modified organism that may have adverse effect on the conservation and sustainable use of biological diversity.

4) Provision by the vendor of any available information about the use and safety of handling such organisms as well as any available information on the potential adverse impact of the specific organisms to the vendee

Articles 16 and 19 of the Convention on Biological Diversity establish a desire by the parties to create a proper framework for legislation on genomics and modified organisms. To work towards implementation of these desires an Open-ended Ad Hoc Working Group on Biosafety was established in July 1996 to develop a draft protocol on biosafety, focusing on transboundary movement of modified organism that may have adverse effect on the conservation and sustainable use of biological diversity. Six meeting were held and in February 1999 a draft text of the Protocol was submitted for consideration by Conference of the Parties at its first extraordinary meeting, convened for the purpose of adopting a protocol on biosafety to the Convention on Biological Diversity. Implementation was not possible in the time available but the Conference of the Parties agreed that it should be reconvened as soon as possible so the Intergovernmental Committee for the Cartagena Protocol on Biosafety (ICCP) was set up with a mandate to undertake preparations required for the preparation of the protocol. Also set up was the Biosafety Clearing-House was established for the exchange of information and experience and to assist Parties to implement the protocol taking into account there individual needs. The BCH provides a huge resource of online material and links to relevant databases intended to provide useful information to aid the implementation of the protocol.

Reasons for the failure of the Cartagena talks

The Protocol would have allowed governments to regulate the international trade in genetically-modified organisms (GMOs) on grounds of possible on environmental or health grounds. This lead Six countries to argue that the proposed protocol could restrain free trade. They wanted the protocol to be subordinate to the rules of the World Trade Organisation (WTO). The six known as the Miami Group: the US, Canada, Chile, Argentina, Uruguay and Australia. The reson why these six countries could frustrate the wishes of the 160 or so countries that wanted the protocol to be on a par with the WTO? They were some of the world's largest agricultural exporters and so had an disproportionate amount of influence; despite the fact that the US is not a member having not even signed the biodiversity convention. There was also another grouping formed of developing countries who wanted a much stronger protocol. The ensuing arguments meant that the talks ran out of time before agreement was reached.

Reasons for the success of the Montreal talks

The main reason for the failure of the Cartagena talks was failure to reach compromise on the issue of weather the convention have equality to the WTO and proposals that all GM foods are labelled to alert consumers these. Following intensive bilateral negotiations between the major GM exporters (Canada and the United States) and negotiators representing the EU and the developing countries; against the odds a deal was brokered. This deal retained the equality of the Protocol to the WTO but restricted the right to restrict imports. Countries are now allowed by the agreement to restrict imports of GM products *on basis of sound science* if they believe them harmful to human health or the environment. The agreement does not only cover foodstuffs, but seeds for farmers, feed for animals and medicine. As a result of these protracted negotiations was that, 133 nations agreed that the new bio-safety protocol with some teeth which would have equal status with WTO. Agreement was reached on shipments of GM commodities, though not on the specifics of labelling or consumer labelling. A deal was made wherein countries begin negotiations on more specific labelling requirements to take effect no later than two years after the protocol enters into force. The agreement on GM commodities shipments was that they should bear labels saying they "may contain" genetically-modified organisms and are not intended for intentional introduction into the environment.

Towards the future of the Biosafety Protocol

The issues of specific labelling of GMOs were discussed in the second meeting of the ICCP, which was held in October 2001 in Nairobi, Kenya. The ICCP's report has yet to be published though it seems likely that it will recommend improvements in the tracing of GM foodstuffs as well as there impact on the environment though escape of genes from modified crops to wild relatives.

The biosafety protocol under the umbrella of the convention will have to include health in its assessment of GMO regulation since scientists at the Wildlife Trust are linking the emergence of new diseases and environmental degradation the researchers have shown that habitat destruction and species loss are ecosystem disruptions that can alter disease transmission patterns. Since GMOs have the potential to disrupt ecosystems and encourage monoculture low diversity faming such impacts might require adding to the assessment of risk according the precautionary principle.

Though it can be argued that with an expanding population and shrinking resources we cannot be held prisioner by precautions for the unknown. The obstacles to sustainable development include a number of intractable problems. These could in principle be solved through genetic engineering. The provision of adequate safeguards and means of technology transfer at reasonable cost needs to be agreed upon and implemented by the parties to the Protocol and convention if the benefits of biotechnology are to be realised.

Providing these safe guards are put in place Biotechnology promises to limit destructive practices while obtaining higher and more stable yields on less land. Genetic engineering to confrere drought resistance could in concert with enlightened social policy help to alleviate politically and developmentally crippling conflicts over water control. These conflicts put pressure on the environment and easing these conflicts can on help the conservation of biodiversity by safe guarding marginal land.

Improvements in non-commercial or subsistence crops will not attract corporate research efforts but offer hope for greater food security the "golden rice" with Vitamin A being a much discussed example. So reducing pressure on biodiversity and increasing it value. Gordon Conway, President of the Rockefeller Foundation, refers to this potential as a "doubly green revolution." This conception of the value of genetic raw material loss of biodiversity increases the urgency of conservation and maintenance of biodiversity as our greatest resource. The list of medical and agricultural discoveries derived from Wild biota and innovation inspired by Wild biota is large and growing rapidly.

It is far from certain that this marvellous science will prove a blessing or a curse to humanity. On one hand agribusiness seeks to use it to maximise profit at the expense of man and environment with terminator technology and glyphosphate resistant crops. On the other the possibility of crops reducing human misery and environmental degradation offers the old enlightenment ideal of science in the service of humanity. This is perhaps a an overly simplistic view since companies exist to make money so victimising them for it is perhaps unfair and equally in our society we ascribe worth to wealth so it unsurprising wonder crops are not developed.

How will the issue of nature's ownership be resolved? Market society bundles rights of access, transferability and control and calls it ownership. This becomes complicated with natural systems embedded in international treaties, national law, and local usage. Conservation in modern times typically relies on public authority and public ownership. Who is the public? Industries contest the claims of Washington, D.C. and federal agencies, often in violent ways. "Indigenous peoples" in poor nations contest national parks and protected areas. Genomics makes possible an ownership of nature at the genetic level. Ownership of life itself is a hot potato of a debate. Social and policy scientists must understand the technical implications of this technology that affects both access to nature and the incentive structure surrounding inventions. The results of conflicts over ownership are often inimical to both conservation and development. With Genomics, disputes are moving from landscapes to cells. Strong property-rights regimes are considered the condition for innovation. Patents on both process innovations and end products are seen as necessary to spur investment. In fields of rapidly changing technology, conventional theory can be turned on its head with strong property rights stifling innovation by increasing transaction costs. The common analogy is patenting of words would quickly put a halt to much creative work in literature.

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http://www.earthtimes.org/may/environmentconferencefocusesmay22_01.htm

http://www.earthtimes.org/nov/biodiversitygeneticnov21_01.htm

http://www.earthtimes.org/dec/biodiversityscientistsdec13_01.htm

BBC News Online

http://news.bbc.co.uk/hi/english/sci/tech/newsid_616000/616835.stm

http://news.bbc.co.uk/hi/english/sci/tech/newsid_623000/623343.stm

CBD Homepage

http://www.iisd.ca/linkages/biodiv/cbdintro.html

UN online resources

http://www.biodiv.org/convention/articles.asp?lg=0&a=cbd-16

http://www.biodiv.org/biosafety/background.asp

http://www.biodiv.org/convention/articles.asp?lg=0&a=cbd-19

http://www.biodiv.org/biosafety/iccp.asp

AM 361 Accounting Course Assignment

Scope

- Answer questions
- Handouts
- Part1 management notes
- Life experience
- Audience

Question 1

- State question
- Engineers and control – accountants on project
- Projects – Parker Pens Apprentice – Germany to complete and project that was running over time. BOC Edwards as a development engineer – once a year project review for continuation of funds for next calendar year.
- Finical backing of investors – new technology. The bubble of the internet could have scared of investors in up and coming business areas.
- SARTOR states that Engineering students must have an appreciation of the world of finical. Imeche and there rules for chartered Status. Look on the internet for references on this item.
- What happened before accounts on engineering projects, industry, as it is to date.

Question 2

State the question

Engineers as Managers

SARTOR

Yes

Control of organicsation
Leaders in industry
MBA was internly setup for Engineers/Technologists to gain experience in finance.

AM 361 Accounting Course Assignment

A large percentage of engineering graduates do not obtain employment in the field, instead they obtain jobs in a varying range of disciplines. Forthis reason, finance in an importenant part of the course and training.

No

- Technology not bankers, "If you need a account, you employ one" you do not need to be able to do the work yourself, quotes Dr. Stephen, course coordinator for Machanical Engineering under grad.
- Single minded people that only look at the acidemic side not that of life and industry.
- Part I management, Prof. Ghay, 4 columns of engineering: Arts, Social, Scientists and Accountants

Conclusions

- State the ansers to each question.....
- Draw in elements from each question for conculsions
- Fold together and wrap up.

Scope

It is intended that this report will answer the questions set by Dr. X, of the School of Management at the University of Y, for the accounts section of AM361 (Management for Engineers). The supporting evidence for this report will be drawn from: personal experience (from 5 years of full time employment), lecture handouts and references for published literature.

Question 1

"What is the relationship between accounting, finance and engineering?"

The mind set of engineers is that of control, in any situation the engineer like to be the one in control. It is seen in industry that resentment between the accountants and engineers working on projects.

- Engineers and control – accountants on project
- Projects – Parker Pens Apprentice – Germany to complete and project that was running over time. BOC Edwards as a development engineer – once a year project review for continuation of funds for next calendar year.
- Finical backing of investors – new technology. The bubble of the internet could have scared of investors in up and coming business areas.
- SARTOR states that Engineering students must have an appreciation of the world of finical. Imeche and there rules for chartered Status. Look on the internet for references on this item.
- What happened before accounts on engineering projects, industry, as it is to date.

Question 2

"Do you think that engineers should be taught accounting as part of their university education?"

State the question

Engineers as Managers

SARTOR

Yes

Control of organicsation

AM 361 Accounting Course Assignment

Leaders in industry
MBA was internly setup for Engineers/Technologists to gain experience in finance.
A large percentage of engineering graduates do not obtain employment in the field, instead they obtain jobs in a varying range of disciplines. Forthis reason, finance in an importenant part of the course and training.

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- Part I management, Prof. Ghay, 4 columns of engineering: Arts, Social, Scientists and Accountants

Conclusions

- State the ansers to each question.....
- Draw in elements from each question for conculsions
- Fold together and wrap up.

Scope

It is intended that this report will answer the questions set by Dr. X, of the School of Management at the University of Y, for the Accounts section of AM361 (Management for Engineers). Each question will be answered in turn and conclusions will be draw between the answers. The supporting evidence for this report will be drawn from: personal experience (from 5 years of full time employment), lecture handouts and references for published literature.

Question 1

"What is the relationship between accounting, finance and engineering?"

The mindset of engineers is that of control, in any situation the engineer likes to be the one in control. It is seen in industry that resentment between the accountants and engineers working on projects. This was observed this whilst working as development engineering at BOC Edwards. Once a year each of the project managers would have to justify their work for that period and also battle to source funding for the next year. This was a stressful time for all concerned.

At an earlier stage in my career, a placement in Germany was offered and taken, this was working as a Toolmaker for Parker Pens Company. The reason for the placement was an over running project deadline, it was decided that sending out British employees would speed up the to completion deadline, whilst there all wages and accommodation was deducted for the final cost of the project. At the time the project was controlled by an American accountant, he had very limited knowledge of engineering and it worked against him every step of the way. In this circumstance the relation between the British workers and the American accountant were excellent, because of his limited knowledge he was trying even harder to make it work, and for this fact he earned the respect of all parties involved.

With the current state of the economy and the passing of the Internet bubble, financial backing for a new venture must be very hard to justify. Especially if the venture is pushing the boundary of technology, in such circumstances an Engineer with the idea would have to approach a possible financial backer. When approaching them it must be hard work to justify the idea and its possible out come, when at the end of the day all the

backer is interested in is the amount of return in 5 years. Engineers look at there work a part themselves, so a knock back on application would be taken to heart. This will yield in contempt and resentment for the financial work. This will at times stress the relationships between the different worlds of Engineering and Finance.

What is SARTOR?

The framework for educational preparation to become a registered Chartered Engineer is laid out by SARTOR. Currently SARTOR Edition 3 is being applied to the educational system. Within SARTOR it states that engineers must have "The ability to Manage projects, people, resources and time" and must have an "awareness of the financial, economic, social and environmental factors of significance in engineering" (SARTOR 3rd). The framework of SARTOR is used by the Engineering Council to set the expected level of degree courses suitable for a Chartered Engineer. To show how SARTOR affects Engineering Degrees the structure is shown in Figure 1

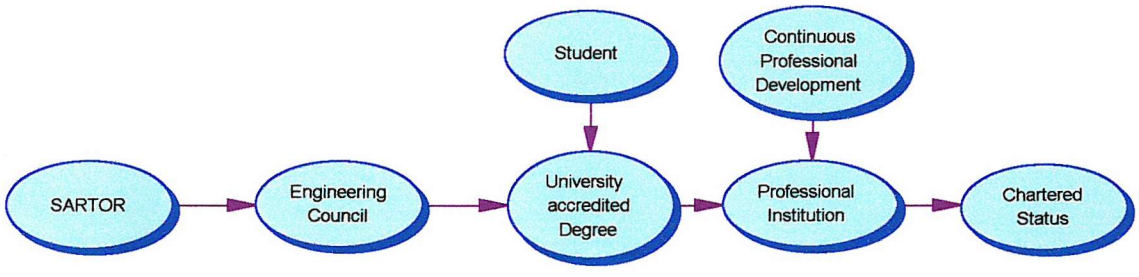

Figure 1 The structure of how SARTOR is applied to Engineering Degrees.

Once at Chartered level it is expected that the person will have the qualities/education dictated by SATOR. In conclusions, SARTOR states that an awareness if management, finance and economic structures must have been leant on the path of becoming Chartered. Some engineering students resent having to learn management and finance, but is an important part of becoming a Charted Engineer.

Question 2

"Do you think that engineers should be taught accounting as part of their university education?"

Question 2 has been split into "Yes" and "NO" arguments it is hopped that this structure will allow a comprehensive answer to be justified.

Engineers as Managers

SARTOR

Yes

There has been a new Doctorate level qualification introduced in the English academic system. It is based on the will established Germany Dr. Ing. qualification which is a combination of technical expertise and work experience in a managerial role. The English equivalent started a Southampton two years ago is called an Engineering Doctorate (EngD) it is supported by EPSRC. For the funding to be found for a new style of Doctorate level qualification it must be deemed a worth weal for industry.

Why were MBA's setup? Dr. Edwards described this as a gateway for Technology based managers to gain knowledge in the field of Management. As a tool for furthering ones career an MBA will slow you down, from experience of work the section managers with MBA's progress faster than those without. It is also noted the the individuals with MBA's control the day to day running of the business and themselves in a superior manner.

As is confirmed each year by the employment figure, a high percentage of engineering graduates obtain position in the field of financial control. This is dew too: engineers logical progressive thinking, a good head for numbers and hard working. For this reason, teaching AM361 and AM362 can be seen as important as engineering related modules: Thermodynamics etc.

In the first year of the Mechanical Engineering degree at Southampton, Prof. Ghey lectured the group. He believed that an Engineer should be made of four columns namely: Art, Social control, Accountancy and Science. On the back of this an Engineer should have equal parts from each column, making the individual an excellent all rounder with each column yield a different aspect of there work. The Art is for Design of

concepts/components, Social control for managerial conduct, accountancy for project finance control and Science for the analysis of analytical solutions.

No

There is the opinion that engineers are Technology based individuals and have not need for Accountancy knowledge. The Mechanical Engineering course coordinator is frequently heard saying, "If you need a account, you employ one, you do not need to be able to do the work yourself you just need to understand it." This can be seen as a common way of thinking amongst the older generation of engineers. The dynamic members of the course have embraced the management as they know that without they will not be able to earn the money, once out in industry.

A number of students studying engineering at Southampton see the management elements of the course as a waste of their time. This is viewed a single minded as they prefer the analytical side of the subject.

Conclusions

The relationship between Accountants and Engineers is at times stretched whether this is the Engineers fault, is not determined in this text. It is shown that from personnel experience that the relationship is more than amicable in industry.

It is also believed that "YES", engineering students must be taught management for the good of themselves and as to fulfil the SARTOR framework of becoming Chartered.

References

Student F

Draft 1

Page one of notes for essay
Green = my notes
Black = text lifted from other sources
Red = things to check before putting into essay
Blue will be my essay text – this will very likely undergo many revisions before it is finalised

It is generally accepted that dyslexic children have a number of measurable differences from non-dyslexic. This implies that the dyslexic will require a different system of teaching, which should take into account these differences. Some assumed of what works well with younger dyslexic children who are taught reading and spelling in a specialist way, will in fact work as well for the older dyslexic. **It is reasoned after all they present like younger pre-readers so the incorrect assumption is that very often that more of the same will solve the problem this could not be further from the truth in the case of dyslexic children.** (ref) Adults do not necessary respond in the same way as children to specialist teaching methods and adult dyslexics are not young pre readers and can not be considered as such.

Dyslexia Matters Hales
There are many routes to the same objective we need to be aware of many of the problems facing the dyslexic.
The underlying structure of our language must be taken into account when teaching

Strategies for working
note taking
speed reading
good and bad days for no apparent reason. Excessive clumsiness.
Solutions are not always complex or difficult for example marking shoes with L and R. may not help the child who still cannot distinguish the difference between left and right making them outside insight might do the trick similarly for the dyslexic student it is important to devise solutions is that are relevant to their studies.
Needs an appropriate example for adult students

Adult Dyslexia Assessment Counselling and Training

adult dyslexics are not just grown-up children developmental dyslexia affects **people's ability to learn to read and write spell it is perceived as an educational problem moreover is generally viewed as a childhood** disorder rather than some thing that affects the entire life of the dyslexic.

Dyslexia continues throughout life the constitutional difference that causes difficulties in reading writing and spelling persist into adult hood.
Adult dyslexia should be studied as a condition distinct from childhood dyslexia.
People continue to develop and the demands on their skills increase successful adults could suddenly find themselves in a difficult situation.
Fundamental differences in memory persist into adult hood and challenge the skills of the dyslexic.
In it is important to emphasise that although dyslexics have a preference for semantic coating ie coding based on meaning they do have access to pharmacological codes and use them alongside the semantic codes.
This explains why some dyslexics can read polysyllabic the words silently. When they have great difficulty in pronouncing them reading aloud as this necessitates the production of meaningful speech sounds that this can only be achieved by using chronological short-term memory the implication is that those with insufficient working memory will perform poorly when reading aloud.

Evidence supports the argument that dyslexic people who have become successful readers sometimes referred to as compensated dyslexics make heavy use of semantic codes Pennington 1991.
Appropriate learning styles multisensory learning adult dyslexics are not just children were grown-up therefore they do not need to the same kind of teaching as would be given to children.
Difficulties include confusion in rhyme detection page 14
the persistence of bad spelling page 14
difficulties with learning page 15
spelling one of the most persistent difficulties dyslexic people encounter
is spelling more often of a problem than reading because it is harder to produce a word from scratch than to recognise it from a list Miles 1990 →
people involved in teaching dyslexics are generally well aware that learning is enhanced if it involves seeing hearing and doing. | ref.
A multisensory learning
Dyslexics needs and goals the needs of the dyslexic adult are different from that the child similarly and goals that they are wanting to reach are also in proportion
coping strategies the adult dyslexic develops different coping strategies these are not always good practice
what does the dyslexic adult need to learn -- spelling? Improvements in reading? Improvements in writing? Study skills.
Strategies - the teaching methods that build on the strengths of the dyslexic.
dyslexic people need to learn ways to compensate for their difficulties
if you always do what you will always done when you're always get what you've always got think about this in reference to coping strategies
adult dyslexics may have a distorted perspective of what is normal and may have

higher expectations of their skills and they perhaps should.
Intellectual expectations of the middle classes ???
multisensory methods are in integral part of the teaching programme making learning more powerful memory aids such as mnemonics and visual imagery are incorporated as the way of improving recall
breaking words into syllables colouring different syllables using a card with broken word on one side and meaning on the other
Kurzweil 3000 and reading
note taking listening skills and note taking skills dyslexic people need to become good listeners (qualified this) page 67 — MFY. Put in refs.
checking improve reading dyslexic adults need to spend copious amounts of time proof reading + prof R.
over learning query the use of word processors as over learning tools frequent reassessment of what has been learnt symbols and coding it is useful
organisational skills will we need to talk about this

Understanding specific learning difficulties Margot Prior
intervention page 140 why intervention what principles do we need to address still underlining principles and intervention need to be considered the first is that for almost every dyslexic child individual one-to-one intervention will be the optimal procedure. This is particularly true for the dyslexic adult the second principle should want teach to strengths ie what the dyslexic adult can do best all should we teach to weaknesses improve the areas that the adult finds difficult.
This is still page 140
teaching to strengths or weaknesses
a direct individualised teaching which focuses on defects and strengths identified through testing
b elevating students levels of motivation
c.integrated packages such as the one described from reading remediation in the Hatcher et al study 1994
D. focusing only on weaknesses or strengths may limit efficiency
E. long-term monitoring and follow-up will be needed
page 145.
approaches to teaching reading in the classroom and helping children who have reading and spelling difficulties as sometimes broken into two basic methods one emphasises reading for meaning and concentrates on whole work methods or language experience this is sometimes called top-down principle the other emphasises the code approach and involves phoneme awareness training direct phonics teaching and methods that include analysis of syllables and into word units this is being called bottom up.
The methods described here usually fall into one of these two methods.
Programmes learning page 147 computer assisted learning page 149 need to bring in

something about computers and the essay reading recovery page hundred and 50 talking books and 52 remedial methods for spelling page hundred and 57 summary useful to look at page hundred 58

Dyslexia Gavin Reid chapter 5 teaching approaches
relevance to the curriculum -- any remediation needs to be relevant to what the student is learning all the needs of the course might be do they need to get assignment in rather than learning to spell however do they need to learn lists of useful words that are relevant to their course ie nurses and terminology.
The teaching of adults needs to be individualised programmes of teaching it is not easy to support adult dyslexic learning in groups as each of these students will have their individual needs and the individual courses. Generalised group teaching that addresses essay writing needs or other basic studies skills can sometimes you put in place
the irrelevance of LetterLand in adult teaching
multisensory language course page 90
alphabetical phonics page 94
the Slingerland programme page 96
tracing copying writing in the air simultaneous writing from memory and saying the latter is singularly inappropriate for adult learners however some of these methods could be adapted in the support of adults?

In addition to the impressive number of individualised programmes available for children with dyslexia there is also an abundance of support material which can be utilised by teachers
think about counselling approaches page 114 Gavin Reid
it might be useful to look at the study skills book
look at learning styles this could be incorporated in the essay page 135 Gavin Reid
learning style is a broad term to describe those factors which influenced all aspects of learning.
Learning styles and dyslexia multisensory strategies by used widely in the teaching of dyslexic children this could also be the case of teaching dyslexic adults look at the **Dunn and Dunn** learning styles model
study skills page 141
scheme after development? Page 143
minded mapping and visual skills page 148 repetition and over learning page 148
simple mnemonics

Chapter 7 dyslexia in higher education this may be more useful this chapter needs to be read and notes made at a later stage page 154

in helping the dyslexic adults it is necessary to build up good communications and partnerships remediation can only be achieved in partnership.

draft 10

Student F

An Evaluation of Methods for Teaching Study Skills to Learners with Specific learning difficulties in Higher Education.

Everyone knows that dyslexics are not able to read properly and spell in a weird fashion (Frith in chapter 1 dyslexia green book)

Dyslexia is often still naively considered as a condition that only affects children (Thompson and Watkins 1998), and then only with particular reference to reading and spelling. However, dyslexia is a constitutional condition that cannot be "grown out of " persisting throughout adulthood (McLoughlin, Fitzgibbon, Young 1994). Although students in higher education with a specific learning difference may still have problems with reading and spelling, these difficulties are often secondary to those of organisation, note taking, essay planning and writing. It is in these areas that the adult student will need the most support. It is accepted that, in comparison to their non-dyslexic peers, children with a specific learning difference have measurable differences in their ability to acquire written language (Thompson and Watkins 1998), and as they do not respond well to conventional teaching they require a different method of teaching. A multisensory language programme has been shown (ref) to be the most appropriate methods of teaching children with a specific learning difference, however this type of programme is may not be appropriate when supporting adults. Although this does not necessarily mean that these students do not benefit from a multisensory approach to their learning. In order to provide relevant support for these students, the teaching should be based upon the individual's owned profile of strengths and weaknesses and should be approached from a top down methodology with frequent over learning.

General needs of the dyslexic student in HE

Studying in higher education presents all new students with the need to develop new skills to cope with the demands put upon them. These skills are especially difficult for the students with a specific learning difference to acquire (ref small black book). The cognitive profile of the dyslexic student is made up of a number of strengths and weaknesses that can have an effect on their learning. It follows; therefore, that these students need help to develop their strengths and support their weaknesses. Herrington in Reid(1996) suggests that study skills support at this level should be enabling rather than compensatory. It is important, therefore, that the specialist support tutor is also aware of what is expected from all students in the institution concerned, and considers the possibility that the institution might be disabling rather than the student being disabled. This leads logically to ways of study in which students can achieve their goals, in a manner that they find not only relevant but also fulfilling and dignified and not 'remedial' or second-class. (ref Gavin Reed chapter 5 teaching approaches).

Assessment

It is the identification of the student's own individual pattern of strengths and weaknesses that is of importance (ref). An educational psychologist's report, or the

results of an in house assessment by a qualified dyslexia support tutor, can indicate the areas of study that an individual student may find difficult. It is essential to address these areas of when devising a study skills programme for these students. There is often a miss match for in their cognitive profiles of these students between their verbal and non-verbal reasoning, this together with poor working memory and organisational skills, can lead to intense frustration and low self-esteem. Most of these students will have developed some coping strategies and some will have developed these to a high degree, in order to compensate for their dyslexia. (ref) However, these coping strategies, although adequate and appropriate for the student up to until now, may become ineffective at this higher level of study.

Multisensory Language Programmes

When teaching students with a specific learning difference it is necessary to have a individualistic and holistic approach to the students learning **Reid (1988)** For young children this is likely to be a multisensory language programme. This type of teaching is highly structured, phonologically braced and progressive has been shown to be highly effective. (ref) However, when supporting adults students this approach is often less effective. The form of teaching most appropriate in a higher educational setting is that of skills building rather than remediation. Because the priority for a student is the production of an assignment or passing an exam, the type of support given must reflect this ultimate goal in the teaching. Most dyslexics experienced difficulties with organisation, time management and concentration as well as difficulties with spelling and possibly reading comprehension **(ref in last essay)**. These difficulties have a variety of "knock-on" effects on the student and their ability to produce work on time. **(see appendix -- ways that dyslexia can affect students in higher education)**. Although the highly structured approach of the spelling and reading programmes successful with the younger child are not suitable in a higher educational setting there are aspects that can be taken from then and used successfully here.

Appropriate study skills

Generally, these students want to be able to spell enough words to produce acceptable written work, rather than how to spell every word in the dictionary. Although learning to spell is often viewed as a low priority by the students themselves, it is essential not to lose sight of the fact that at times spelling counts. For example, the student nurse needs to learn some specific terminology. This is not just necessary for the production of her assignment but is likely to be needed throughout her career. The use of a multisensory support methods in this scenario would be to write the words on pieces of card, breaking down the word into syllables, with each syllable written in a different colour, with the definition written on the back. This method could also help with pronunciation. This method not only provides a multisensory approach to learning spelling, but also provides the student a reference card that they can refer to in the future. Mnemonics are another way of providing students with spelling strategies and for some, these work very well. Although, the trigger needs to be relevant too, and rememberable by, the student. Mnemonics can create problems especially if notes are being taken, reciting 'never eat

cheese, eat salmon sandwiches and raspberry yoghurt every time you need to spell 'necessary' can take up an several valuable minutes.

Supporting a student's difficulties in the most appropriate way should mean using a variety of teaching methods. Reading is one of the main difficulties for many dyslexic students and the prospect of reading for a degree can be daunting.Help is often needed to provide students with the strategies to cope with this large amount of reading. Dyslexic students often feel that they have to read all the references upon their reading list(ref). Therefore simply making it clear to them that they are not expected to read every book from cover to cover can alleviate large amounts of stress. Teaching reading skills such as the previewing or skimming reading is beneficial. However the use of technology as a reading tool can help when there are difficulties in understanding some texts. Some software designed for this purpose uses a multisensory approach highlighting each word in colour as it "reads" scanned texts.

Technological aids

The use of technological aids can be of enormous assistance to students with a specific learning difference and can often be used to reinforce learning. However, it must be remembered that technology is not infallible (Cottrell in Ried page153) and cannot be a substitute for human study skills support. The use of a word processor has liberated many dyslexics in the sense that not only have the motor difficulties of writing been removed (Sutherland and Smith 1997 in Reid), but the provision of a spellchecker can relieves some of the student's anxieties associated with miss spelling. The provision of a word processor in itself is insufficient, as it cannot highlight a wrongly used word that is spelt correctly (ref Reid?). People with a specific learning difference have a tendency to read what they think they have written, rather than what is on the page. In consequence, written work should be read aloud in order that the student can identify their mistakes. This can also be helped by teaching the student to use specialist technology to 'read back' their work.

Note Taking

Taking notes in lectures can pose difficulties for students with weaknesses in short-term memory and auditory processing. Recording the lecture on a tape or MiniDisc removes the need for taking notes in the lecture but does not completely overcome the problem of note taking. The notes can be made at a more convenient time and at a slower pace, using the recording device. Because student still have to make notes, it may be more appropriate to teach some note-taking techniques, such as mind mapping and the use of colour, in order that they can make notes quickly and efficiently in the lectures (ref Andi inasyst). Students will still have the backup of the tape recorder for any parts they may have missed or did not initially comprehend. The specialist support tutor can play an important role in developing with the student an understanding of why they are having these difficulties, as this can strengthen and encourage development of learning strategies to overcome them.

Topdown teaching and over learning

Efficient essay planning and writing derives from the development of both organisational skills and note-taking skills, in order to succeed at higher education level. It is here that the student with specific learning difficulties is likely to have the most problems, and need support in order to reach their educational goals. However, for most students, study time is not timetabled, therefore they tend to seek assistance from specialist support tutors when they have difficulties in completing an assignment. This makes the ideal of over learning difficult to achieve. Although over learning and reinforcement can often be achieved in a less formal way. The use of colour

Working together

The demands of higher education study can highlight a wide range of academic social and personal issues that can combine to produce feelings of stress and anxiety. These can have as much of a disabling influence on a student's learning as their specific learning difference. **(McLoughlin, Fitzgibbon,Young 1994)** In helping the dyslexic adult to reach their academic potential, it is necessary to build up good communications and empathy, as effective support can only be achieved through partnership and trust. **(McLoughlin, Fitzgibbon, young 1994)**To build up this trust it is important that the students can appreciate the relevance of the teaching **(ref)**. There are many routes to the same objective, **(Hales 1990?)** and therefore, it is important to understand this when providing specialist tuition at this level.

Conclusion

Students with a specific learning difference continue to develop their coping strategies throughout life. However, the demands upon their skills increase in higher education and as adult students they can suddenly find themselves in a difficult situation **(ref M. F. Y.)**. It is then that the student with a specific learning difference invariably seeks help from the specialist support tutor. A key element in the support of the dyslexic adult students is understanding of dyslexia itself, exploration of the students of own particular profile and the relevance of the support given. Difficulties are not just with spelling and reading but also with organization and time management, which are crucial to the production of work for assessment. A multisensory language programme that has been designed to teach children the literacy skills that they have not acquired in the normal way **(ref principles of teaching)** is not the most suitable way of enabling the dyslexic student. Because the use of these programmes are not the most appropriate form of teaching to address these students need it is necessary to help the student develop alternative strategies to overcome these difficulties. This will involve not only adapted multisensory learning methods but also the use of technology.

Finished

Summary

The new skills that all students need to develop when studying in higher education posse particular difficulty for the student with a specific learning difference. Just as a dyslexic child will need specialised teach methods so to will these adult students need appropriate study skills support. The key to supporting dyslexic students in Higher education is an understanding of their own individual cognitive profile and using an appropriate methodology to support this. This will mean using a variety of teaching methods and include the use of technological aids.

An Evaluation of Methods for Teaching Study Skills to Learners with Specific learning difficulties in Higher Education.

Studying in higher education presents all new students with the need to develop higher level skills to cope with the demands put upon them. These skills are especially difficult for the students with a specific learning difference to acquire (ref small black book). The cognitive profile of the dyslexic student is made up of a number of strengths and weaknesses that can impact upon their learning. It follows therefore, that these students need help to develop their strengths, and support for their weaknesses. Herrington in Reid(1996) suggests that study skills support at this level should be enabling rather than compensatory. Therefore, it is important, that the specialist support tutor is also aware of what is expected from all students in the institution concerned, and considers the possibility that the institution might be disabling rather than the student being disabled. This leads logically to ways of study in which students can achieve their goals, in a manner that they find not only relevant but also fulfilling and dignified and not 'remedial' or second-class. (ref Gavin Reed chapter 5 teaching approaches).

The needs of the dyslexic student in Higher Education

Dyslexia is often still naively considered as a condition that only affects children (Thompson and Watkins 1998), and then only with particular reference to reading and spelling. However, dyslexia is a constitutional condition that cannot be "grown out of " persisting throughout adulthood (McLoughlin, Fitzgibbon, Young 1994). Although students in higher education with a specific learning difference may still have problems with reading and spelling, these difficulties are often secondary to those of organisation, note taking, essay planning and writing. It is in these areas that the adult student will need the most support. It is accepted that, in comparison to their non-dyslexic peers, children with a specific learning difference have measurable differences in their ability to acquire written language (Thompson and Watkins 1998), and as they do not respond well to conventional teaching they require a different method of teaching. A multisensory language programme has been shown (ref) to be the most appropriate methods of teaching children with a specific learning difference, however this type of programme may not be appropriate when supporting adults. Although this does not necessarily mean that these students do not

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Assessment

It is the identification of the student's own individual pattern of strengths and weaknesses that is of importance (ref). An educational psychologist's report, or the results of an in house assessment by a qualified dyslexia support tutor, can indicate the areas of study that an individual student may find difficult. It is essential to address these areas of difficulty when devising a study skills programme for these students. There is often a miss match in the cognitive profiles of these students, between their verbal and non-verbal reasoning. This together with poor working memory and organisational skills, can lead to intense frustration and low self-esteem. Most of these students will have developed some coping strategies and some will have developed these to a high degree, in order to compensate for their dyslexia, ' Compensating Dyslexics' (ref). However, these coping strategies, although adequate and appropriate for the student up to until now, may become ineffective at this higher level of study.

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Working together

The demands of higher education study can highlight a wide range of academic social and personal issues that can combine to produce feelings of stress and anxiety. These can have as much of a disabling influence on a student's learning as their specific learning difference. (McLoughlin, Fitzgibbon,Young 1994) In helping the dyslexic adult to reach their academic potential, it is necessary to build up good communications and empathy, as effective support can only be achieved through partnership and trust. (McLoughlin, Fitzgibbon, young 1994)To build up this trust, it is crucial that the students can appreciate the relevance of the teaching (ref). There are many routes to the same objective, (Hales 1990?) and therefore, it is essential to understand this when providing specialist tuition at this level.

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overcome these difficulties. This will involve not only adapted multisensory learning methods but also the use of technology.

Student G Essay Plans

TEACHING METHODOLOGY

today

Science is not objective or impartial.

Nature is so complex and so random that it can only be approached with a systematic tool that presupposes certain facts about it. Without such a pattern it would be impossible to discover an answer to such simple questions as 'what am I looking at?'
The knowledge acquired through any structure is selective.
***
Δ

- OPEN SYSTEMS - Schrodinger's Cat random disturbances offer different sorts of fluctuations that lead to self-ordering - amplified by use of the 5 senses..... CHAOS and Self
- SOS - Gillingham Stillman 5 Senses and the part that each plays in a true Multi-sensory learning approach is important but can it be measured - eg Olfactory research catrried out by *** Cat Connectionism
- Tracing OVER Hulme C. (1981) Importance of STYLE of script Hwf W / Old English FONTS etc.
- **Chaos Theories of Mind**
- ARROW - the OPTION to review the SAME work identical repetition ..
- BLIND man and Elephant - STRUCTURE or FRAMEWORK guide needed to facilitate progress. Modelling is essential as it is important to have points of reference within which to work or else the written work becomes simply non focused writing without any purpose to fulfil.
- MOVEMENT Montossori
- ENTROPY v. GROWTH
- POSITIVE or NEGATIVE Feedback small corrections - importance of Self-similarity and the benefit of presenting the **identical** stimulus be it visual, Audio or Kinesthetic in its approach to learning . Positive Feedback is linked to POTENTIAL which is connected to the Heirarchy of Understanding and thus the Potential (internal) map of what can be achieved realistically be the learner and the support available at this SNAPSHOT moment in time CLIP as it is vocalised. Or perhaps how it is measured but then is often a negative feedback for the individual.
- VISUAL v. Audio cues **Fractals** (CLIP or Stanovich) or close to it in the written style OLD English writing style. Writing copied from the board is usually sub-standard to the learner and therefore it tends to be ignored as having no'tribute' value. No token value to the learner. Historical texts or scripts DO have tribute value to the learner - as it is a part of our 8 Hidden Needs - Packard (1957) as a method of selling the Creative Outlet to the learner.
- Hereditory factors must be a part of the CLIP Stanovich that is not tested for but is implied for all learners. (Language based and must have a Multi-lingual component) the sense of a reassurance of worth for the individual is more easily recognised when linked to family history story or language issues.

Assisgnment 2 References

JB
Schrödingers Cat

Hulme, C. (1981) *Reading Retardation and Multi-sensory Teaching* (London: Routledge & Kegan Paul)
Packard V. (1957) *The Hidden Persuaders* (London: Longmans)

Ass 2. 28-03-02 (White Noise)

3. ✓

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Nature is so complex & so Random that it can only
be approached with a systematic tool that presupposes
certain facts about it. Without such a pattern it would
be impossible to find an answer to questions as simple as
'what am I looking at?'
The knowledge acquired through any structure is selective,
there are
no standards or beliefs guiding search for knowledge which
are not dependent on the structure.

Scientific Knowledge

Challenges to
Sciences of the Mind — array
Newtonian paradigm. — quantum theory
— Chaos
— Complexity.
Blind man & elephant.

Direct experience.
(teaching methods)
translated into scientific knowledge.

Chaos theory of Mind

Neural or Sub neural activity accompanies
falling in love or becoming angry

Consciousness & Creativity Omissions
in dominant Models of Mind

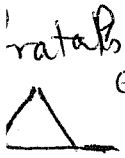
Constantly evolving in dialogue with experience

Is the brain creative because its neural structure is

Mind body Problem

Presupposes acquisition of Patterns for spelling by repetition. — (doing) — Practice.

ratalk approach



Visual cues. *
ecific Visual phenomina

Unexpected •

[Outstanding Key]

Visual
— Writing with Symbols.

who reads the notes — Why.
decoding written notes (only when it is needed).

proportional to the attention to detail
any human activity.

ITROPY ⟹ Chaos. *

Re-acquision of 'Skills' of wanted
= Engineers = 141.

aos
+ Self organisation
arallel processing.
Neural Networks

Information V. Entropy

Dissipative Structure.

The Mandelbrot Set

- the most complex shape in the universe!

Use the fractal to make the units of text reduced in size.

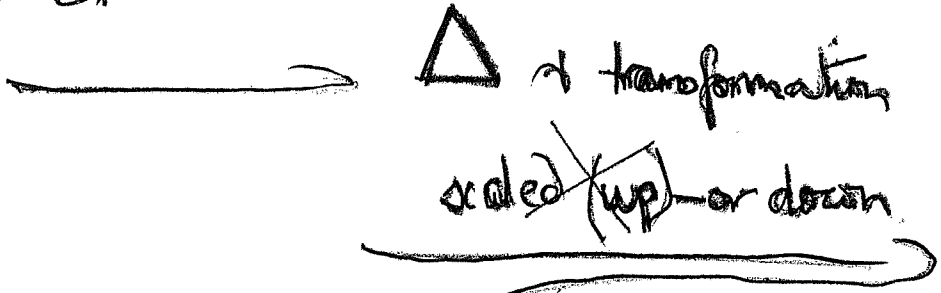
- Positive & negative feedback
  & self correction
- Self similarity.
- a dusir of points

line — 1–2 dimensionality range.

Shape 2 — 3
Plane Solid,

ITERATION

D.



△ a transformation

scaled ~~(up)~~ or down

Ad infinitum

ever decreasing Scale

A peano curve — [theoretical curve]

— positive feedback ** "multiplier"

We live with our own model of the world ~~but~~ not as ~~we~~ you know it both in

Jim!...

But at any single moment a CLIP(n) can be sampled to compare with  a sample which may/or may not record movement.

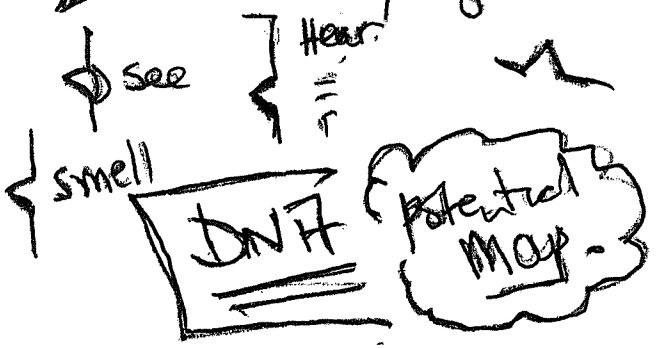
~~towards~~ along order ~~of~~ structure growth  or Chaos/entropy continuum.

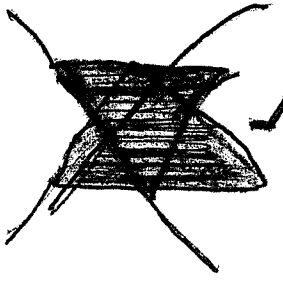
Fractals But this will not give the individual a Key to how to ~~do~~ not unless the exact repetition is carried out eg. (Mind > A. > K.) Being there

'I was there' ...

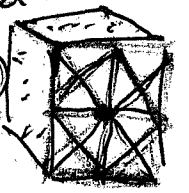
Heriachy of Understandg. — Present (Live performance) (5 Senses)

Total recall ↷ Rewind Capability. DVD/





Model.

clip(n): 

die top down

Individually broken — Re-Inward - chance /21. bottom up /Symetry)

858

Very small changes are important ⊗

↳ evolutionary driving force

feedback = Pos. fwd / negative - an

Open systems.

* 5 senses

Olfaction perception.

1/10 of second to recognise a face

Serial & Parallel → poor at rule following mental arithmatic Grammar.

Connectionism

Mental func

⊗ Open Systems.

initial random disturbances

different sorts of fluctuations

'snowball' effect

amplified

Self ordering

dependent of the 'flow' rate of energy.

eg. Sun.

or data volume

Appendix 8

List of Final Essay Grades

Final Essay Grades

Student A	C
Student B	C
Student C	68%
Student D	72%
Student E	78%
Student F	B
Student G	C

Appendix 9

Proof Reading System

Proof Reading Checklist

1. Identify five types of errors you usually make and write them in the box. Identify where in the word you make the error – are you prone to muddling up letters, for example?

2. Ask a friend to check the spelling of the words in the box.

3. Use the auto-spell facility in Word so that these irritating 'typo' errors are eradicated for you.

4. Use the talking spelling checker facility in TextHelp to see if you can 'hear' the strange spelling mistakes you have made.

5. If you are prone to muddling up homophones (e.g. words which sound the same but mean something different – 'new' and 'knew') TextHelp talking spelling checker will help you to spot these errors.

6. Remember always leave a time gap between writing and proof reading.

Appendix 10

Single Case Study Methodology

Appendix 10

Single Case Study Methodology

Interdisciplinary synergy is often difficult to achieve. A confluence of disparate methodologies requires sensitive handling of data in order to ensure that the *fusion of horizons,* mentioned in Chapter Three, p. 98, is attained. It is important to reiterate that the hermeneutic/interpretive epistemology (p. 98) is essential to this research. The individual differences (and similarities) of the case studies provide rich data for the interpretation of the phenomena that dyslexic profiles have on the writing process in Higher Education. The experience of the writing process from the perspective of the individual dyslexic student is at the heart of the research to help the researcher *interpret and understand* the impact of the dyslexic profile on this process and to examine the compensatory strategies which are employed by the individual in order to function and perform as expert writers within the context in which they find themselves. The concept of 'minimum structure and maximum depth' is one that has been embraced in this study (Lester, 2003).

The Role of Single-Case Methodology

Single-case studies can be used to identify differences or discrepancies between individuals. Single-case study is used by different disciplines. However, the purpose of single-case methodology varies, and it would appear that one of the fundamental distinctions lies in the philosophical stance. This methodology can be adopted by educationalists who wish to examine the characteristics of an individual in relation to a wider group or class of students. The naturalistic setting of the social scientist would be favoured and individual *differences* would be explored. On the other hand, the clinical-experimental setting of the cognitive psychologist would result in an examination of *deviation* and would, therefore, rely upon demonstrating an individual's performance in the context of normal variation.

In a discussion of this nature it is important at the outset to explore definitions of single-case study methodology in order to determine the efficacy of this for the current research.

Cohen & Manion refer to single-case research as 'experimental methodology' (p.178). They go on to describe two elements which are usually present in the research design:

> "1. .... Continuous assessment of some aspect of human behaviour over a period of time, requiring on the part of the researcher the administration of measures on multiple occasions within separate phases of a study.
>
> 2. ..... 'intervention effects' which are replicated in the same subject(s) over time."
>
> Cohen & Manion, (1994 p. 179)

McCormick (1995) and Reason & Morfidi (2001) concur with this explanation. It is increasingly used in the field of Special Educational Needs (SEN) in mainstream settings to ascertain the value of specific intervention methods and relies primarily upon an ABAB design.

Methodological Considerations

Given the above definition, the author's research was not based upon a clinical experimental methodology and was not designed to incorporate pre-test → intervention → post test statistical analysis of the students involved in the study. In the strict sense this research does not conform to single-case methodology in that it is not an ABAB design. Nor does it set out to illustrate the success or otherwise of intervention methods over a period of time for individuals. Rather it set out to explore the possible connections between the ways in which the dyslexic profile affects the writing process.

As discussed in Chapter 3, Research Methodology, the need to combine elements of quantifiable data – viz. aspects of the cognitive profile, basic literacy functioning and time spent on aspects of the components of the writing process – with the qualitative reality of the student experience – viz. the semi-structured interviews, draft test and the final product – were of paramount importance to this research (p.101-102; 103-105; and 108-110). Reasons for rejecting the clinical experimental design have been explored in Chapter 3. It would appear that *ex post facto* methodology most

appropriately allows for the investigation of possible cause and effect of writing difficulties with dyslexic students. As Cohen and Manion state

> "a method of teasing out possible antecedents of events that have happened and cannot, therefore, be engineered or manipulated by the investigator."
>
> Cohen and Manion (1994) p. 146

In this way the researcher is able to utilise the independent variables which have already occurred, i.e. the WAIS and Literacy data, to examine their impact on the writing process.

> "She then studies the independent variable or variables in retrospect for their possible relation. The researcher is thus examining retrospectively the effects of a naturally occurring event on a subsequent outcome with a view to establishing a causal link between them."
>
> Cohen and Manion (1994) p. 147

Therefore, the degree of control within the research design is limited, by the nature of the naturalistic setting but is appropriate in this context. An *ex post facto* design allows for the exploration of 'what goes with what and under what conditions' (Cohen and Manion, 1994, p. 152), and would seem more appropriate to the educationalist than the 'if x then y' approach of the experimental design.

The role of normed data in this research

Comparability of individual performance within a group is always problematic. It was felt important to use the information which is available to educators as a starting point: viz. the WAIS subtest scores, where possible, and standardised literacy scores and performance. Identification of dyslexia in individuals in HE is challenging because of the element of compensation which is always present and has been shown to be evident with the case studies – in particular, the literacy performance of Students F and G, for example. The ensuing result is that often scores cannot be taken at face value because of the compensatory elements which are employed by students and which will screw the results. The statistical data is used to demonstrate discrepancies in performance rather than to analyse specific deviations in a statistical sense. Hence the WAIS and the standardised scores provide a snap-shot of the cognitive profile to help demonstrate the strengths and weaknesses of each of the

students so that these can be taken into account when examining performance in the writing process, exploring real-time data and student experiences. The rationale for the use of real-time data was discussed in Chapter 4, p. 122-123. Thus, the decision to draw together norm-referenced psychometric profile data, real-time data and case study data was the pragmatic compromise. This mixed methodology approach is being adopted more and more by educational psychologists and educationalists who work closely together, particularly in the area of functional literacy. Case study and single-case study methodologies complement each other.

> "educational psychologists have found qualitative research and interview-based approaches valuable in evaluating initiative in particular local contexts. In this type of work, lack of generalisability is not necessarily an issue because the purpose has been to inform the development of a project or initiative."
>
> Reason & Morfidi (2001), p. 228

Nevertheless, the juxtaposition of the normed psychometric data with the components of the writing process presents interesting challenges. Whilst the use of the WAIS for the identification of dyslexia is controversial, it should also be borne in mind that it was not constructed to link directly with the components of a cognitive model of the writing process. However, as has been shown in Chapter 6, sections 6.2.2, 6.2.3 and 6.2.4, the cognitive skills assessed by the WAIS are the pre-requisites of the cognitive model of writing outlined by both Flower and Hayes and Bereiter and Scardamalia. Indeed, it is necessary to use this data to *infer* cause and effect within individuals.

The advantage of using the principles of single-case study methodology would appear to lie in its spotlight upon the 'particular' as opposed to the 'general', which resonates with the wish to examine the impact of individual profiles in the context of the writing process. One of the major differences in the author's research is that, unlike research designs of cognitive neuropsychologists, no control group has been set up. The 'particularness' can be examined in terms of intrasubject data. However, if normed data are overlooked, then it would be difficult to be 'certain that there was anything unusual' in the way the dyslexic writers performed - a consequence of the research design of the Bryant and Impey studies (Bryant & Impey, 1986). Nevertheless, for the development of pedagogy, it is also important to analyse

intersubject findings so that aggregation across students can be examined, i.e. the 'generalisability' of the research findings.

Criteria for assessing 'discrepancy' in the current research

Much of this data, with the exception of writing speed and components of the writing process, is based upon normed distributions. In this way it is possible to judge whether an individual's performance is within or outside the range of normal variation. The criteria for demonstrating discrepancy will be:

1. WAIS subtests
2. Reading and Spelling Single Word Tests

It should also be noted that comparisons with Torrance's data have to be viewed with caution. Parameters between my data and the Torrance data are only comparable in so far as the aspects of the writing process are used in both research designs. However, it should be noted that the *task demands* were different not only from those of the Torrance research but also varied *between* individuals in these case studies. That is to say, the assessment criteria were different because of the different subject disciplines of the seven case studies but also the demands of essay production differed: first year students were required to produce a 2,000 word essay while the post-graduate students were working on an 8,000 word essay. In the Torrance research, a more clinical approach was adopted in that all the psychology students were given the same title to work upon and the word length (2,000 words) was the same for all students. However, my research design was not constructed with single case study methods in mind. Consequently, my data is incomplete for this methodology but was effective for my type of research which enables me to cross-check interpretations and identify discrepancies.

In further discussion with Torrance, I discovered that I did not have access to Torrance's full 1999 data, and therefore cannot use his range of normal variation to analyse standard deviations of the students in this research. Torrance has suggested that 'statistical comparison with his data can be avoided by talking in terms of percentage rather than raw times.'

However, it is worth examining the individual performance matched against the Torrance data to some extent. This can be achieved by comparing individual results from the analysis of the writing logs with the Torrance means.

The limitations of the reading and spelling tests have been discussed in Chapter 6, p. 194-195. Such norm-referenced scores do not get to the heart of performance in the context of text generation for HE students and, therefore have limited credibility in determining the overall effect within the writing process. However, there are no norm-referenced tests available to measure language processing capacity during text generation and research reading processes which would be more applicable to the context of the dyslexic students in this research.

Case Study Analysis:

Student A:

	Percentile Scores	**Standard Deviations**
WAIS sub-tests:		
Verbal Comprehension Index		
Vocabulary	63	0
Similarities	63	0
Information	37	0
Working Memory Index		
Arithmetic	16	-1
Digit Span	75	0
Letter-number sequence	No score	
Perceptual Organisation Index		
Picture Completion	37	0
Block Design	9	-1
Matrix Reasoning	37	0
Processing Speed Index		
Coding	9	-1
Symbol Search	5	-1
Literacy Scores		
Single word spelling	14	-1

Single Word Reading	47	0

Comparison of Performance in the Writing Process:

The data has been derived from an analysis of the real-time writing log. This table demonstrates Student A's performance against the mean data of Torrance's students.

	Torrance Data in % of total writing process	**Student A in % of total writing process**
Collecting	45	38.99
Planning	9	20.13
Translating	26	24.53
Revising/editing	7	15.09
Neat/Proof	12	1.26

Summary:

The deviation scores in the processing speed index would suggest that he would not be able to multi-task during the writing process. This could have a direct impact upon they way in which he goes about the planning for his essay. During this stage he is expected to move effectively between macro and micro elements of the plan. The speed at which he is able to retrieve and map information has affected his performance as can be demonstrated by the percentage of time he needs to conduct this stage (20.12%) as compared with the time Torrance's students took (9%). These deviations in the cognitive profile, taken in conjunction with his recurring phonological difficulties (-1 standard deviation), have an impact upon his performance in editing and proof-reading. On the one hand, he has to spend more than double the amount of time revising and editing his work compared with the Torrance study (15.9% as opposed to 7%), while he spends only 1.26% of the total time on proof-reading compared with the 12% of Torrance group. While the single word reading score shows no deviation, his experience of the reading in context demonstrated his weaknesses in language processing in that he had to read and re-read

sections of text to help him to understand. He used few compensatory strategies, and this could account for the length of time taken for this assignment and would have been compounded by the deviations in his cognitive profile.

Student B:

	Percentile Scores	Standard Deviations
WAIS sub-tests:		
Verbal Comprehension Index		
Vocabulary	75	0
Similarities	91	+1
Information	50	0
Working Memory Index		
Arithmetic	63	0
Digit Span	2	-2
Letter-number sequence	9	-1
Perceptual Organisation Index		
Picture Completion	75	0
Block Design	75	0
Matrix Reasoning	25	0
Processing Speed Index		
Coding	25	0
Symbol Search	9	-1
Literacy Scores		
Single word spelling	9	-1
Single Word Reading	37	0

Comparison of Performance in the Writing Process:

	Torrance Data in % of total writing process	Student B in % of total writing process
Collecting	45	25.18

Planning	9	11.68
Translating	26	49.27
Revising/editing	7	12.04
Neat/Proof	12	0

Summary:

Linking the cognitive profile of Student B with a comparison of the stages of the writing process could provide an explanation for her performance whereby deficits in the cognitive profile have a negative effect on the time she takes to carry out the whole process and her functional efficiency.

Serious weaknesses in working memory index (SD -2 for Digit Span and SD -1 for Letter-number sequence) in conjunction with difficulties with processing speed (SD -1 for Symbol Search) and intractable phonological difficulties (SD -1 for spelling), would suggest that many aspects of the writing process will be affected. The ability to multi-task will be severely affected by the deviation shown in the working memory index. The compensatory strategies used by this student were most applicable to support this profile. She uses voice-recognition software, mind-mapping software and a talking spelling checker and thesaurus to compensate in order to support organisation, linguistic weaknesses and sequencing problems. However, it could be suggested that these strategies have an impact upon the percentage of time she takes to conduct the translation and revising stages because they introduce another layer of operation.

Student C:

	Percentile Scores	**Standard Deviations**
WAIS sub-tests:		
Verbal Comprehension Index		
Vocabulary	75	0
Similarities	63	0
Information	50	0
Working Memory Index		

Arithmetic	25	0
Digit Span	9	-1
Letter-number sequence	16	-1
Perceptual Organisation Index		
Picture Completion	84	+1
Block Design	50	0
Matrix Reasoning	50	0
Processing Speed Index		
Coding	9	-1
Symbol Search	9	-1
Literacy Scores		
Single word spelling	47	0
Single Word Reading	47	0

Comparison of Performance in the Writing Process:

	Torrance Data in % of total writing process	**Student B in % of total writing process**
Collecting	45	35.5
Planning	9	4.67
Translating	26	47.20
Revising/editing	7	12.62
Neat/Proof	12	0

Summary:

Weaknesses in working memory index (SD -1 for Digit Span and SD -1 for Letter-number sequence) in conjunction with difficulties with processing speed (SD -1 for Symbol Search and for Coding) would suggest difficulties in organisation, sequencing at both macro and micro levels and multi-tasking. Yet, this student spent less time on the collecting and planning than the Torrance students. The qualitative data may give an insight into explanation. This latter data provides a depth of insight into her way of working and her previous literacy experiences which have an impact upon how she approaches written tasks. She dislikes reading, although her literacy scores show no deviation from the norm. Consequently, she avoids library research reading for a topic. As explained previously, one possible explanation for the writing profile could be that this student does not appear to have developed any compensatory strategies.

Her translating stage is uncontrolled, despite deficits in processing speed. She does not appear to have developed strategies for compensating in this context, and as a result she spends almost twice the amount of time on this. Although her literacy scores show no discrepancy, her functional performance gives a different picture. In examining her editing/revising, it is interesting that her overall verbal performance is average with no deviation. Nevertheless, taken in conjunction with the deviations in speed of processing, she spends almost double the amount of time in revision compared with Torrance's group.

Student D:

	Percentile Scores	**Standard Deviations**
WAIS sub-tests:		
Verbal Comprehension Index		
Vocabulary	99	+2
Similarities	98	+2
Information	84	+1
Working Memory Index		
Arithmetic	9	-1
Digit Span	5	-1
Letter-number sequence	5	-1
Perceptual Organisation Index		
Picture Completion	98	+2
Block Design	99	+2
Matrix Reasoning	No score	
Processing Speed Index		
Coding	5	-1
Symbol Search	No score	
Literacy Scores		
Single word spelling	34	0
Single Word Reading	79	0

Comparison of Performance in the Writing Process:

	Torrance Data in % of total writing process	**Student B in % of total writing process**
Collecting	45	31.73

Planning	9	36.54
Translating	26	28.85
Revising/editing	7	0
Neat/Proof	12	2.88

Summary:

These tables demonstrate the range of deviation within this student. His profile is most fascinating. The strengths demonstrated in verbal comprehension index (SD +2 for vocabulary and similarities and SD +1 for information) are not replicated in the working memory index nor the processing speed index where the SD are all -1. He demonstrates he is rarely able to multi-task. This can be seen to be reflected in the deviation in planning time. However, he has well developed compensatory strategies which account for his high achievement. His methods of planning supported organisation effectively at both macro and micro levels of operation. He divided all his work into 'manageable chunks' so that working memory capacity and storage were not overloaded at any given time. His use of language is sophisticated, and this reflects the verbal comprehension index SDs. The unusual scores in editing/revising can be accounted for by the particular task demands in his case.

Student E:

	Percentile Scores	**Standard Deviations**
WAIS sub-tests:		
Verbal Comprehension Index		
Vocabulary	75	0
Similarities	84	+1
Information	75	0
Working Memory Index		
Arithmetic	84	+1
Digit Span	16	-1
Letter-number sequence	63	0

Perceptual Organisation Index		
Picture Completion	99	+2
Block Design	99	+2
Matrix Reasoning	95	+2
Processing Speed Index		
Coding	50	0
Symbol Search	84	+1
Literacy Scores		
Single word spelling	9	-1
Single Word Reading	16	-1

Comparison of Performance in the Writing Process:

	Torrance Data in % of total writing process	**Student B in % of total writing process**
Collecting	45	13.48
Planning	9	21.91
Translating	26	37.08
Revising/editing	7	16.29
Neat/Proof	12	11.24

Summary:

Student E's profile of SDs above and below the norm are also interesting. The digit span (SD -1) would suggest difficulties with multi-tasking and working memory capacity. This has an impact upon his planning time which shows the greatest discrepancy. His literacy scores will have an impact upon all aspects of the writing process but in particular translating and editing, where discrepancies are noted. Student E is a metacognitive student and utilises many compensatory strategies to help cope with writing in the HE context. He uses technology effectively: mind-mapping software, read-back facility for editing purposes and scanning of difficult texts so that he can have them read back to him to overcome inaccuracies in his reading. These also account for the time he spends on revision. In addition, it was

noted in the qualitative data that he produced many drafts and therefore needed to constantly edit his written work

(Student F is not presented here because no WAIS data was available)

Student G:

	Percentile Scores	Standard Deviations
WAIS sub-tests:		
Verbal Comprehension Index		
Vocabulary	99	+2
Similarities	98	+2
Information	95	+2
Working Memory Index		
Arithmetic	16	-1
Digit Span	16	-1
Letter-number sequence	No score	
Perceptual Organisation Index		
Picture Completion	91	+1
Block Design	50	0
Matrix Reasoning	No score	
Processing Speed Index		
Coding	9	-1
Symbol Search	9	-1
Literacy Scores		
Single word spelling	62	0
Single Word Reading	10	-1

Comparison of Performance in the Writing Process:

	Torrance Data in % of total writing process	Student B in % of total writing process
Collecting	45	36.11
Planning	9	11.11

Translating	26	33.33
Revising/editing	7	17.36
Neat/Proof	12	2.08

Summary:

This is another interesting profile in that there are wide variations from the norm. His verbal comprehension index is a strength with all elements with SDs of +2. These are set against weaknesses in working memory index (SD -1), processing speed (SD –1) and reading deficiency (SD-1). However, unlike all the other students his spelling comes within the normal range. An explanation for this can be found on p.168. His way of working does not support or compensate for the weaknesses in his profile. He has developed an individual style of approaching the writing process and this may account for the pattern of working.

With such a spread of discrepancy in the cognitive profile, it would be anticipated that there would be discrepancies in translating and revising. Whilst there is a discrepancy in the translation stage it is not significant. Whereas, the discrepancy in the revising is great (the total percentage of his writing was taken up by 17.36 compared with only 7 in the Torrance study.) To some extent this can be accounted for by his discrepancy in reading (SD –1) and speed of processing. However, this could be offset against sound verbal comprehension index scores. What is worth noting is that the compound effect of his compensatory strategies and these profiles may have implications for pedagogy.

Overall Summary

An examination of the individual differences of these students in the context of the general populations provides a platform for the researcher to draw *inferences* from the individual which could be instrumental in developing pedagogy for HE dyslexic students and can help to understand the cognitive architecture of dyslexic writers.

Although single case study analysis demonstrates clearly that the seven case study students each have a scatter of deviation in the cognitive profile, it can be seen that a single profile does not emerge. Nevertheless, with the incomplete data some tentative conclusions can be drawn which strengthen the answers to the research questions discussed in the main thesis.

To summarise from the single case study analysis:

- Deficits in cognitive profile set against the population norms have an impact on the percentage of time taken to carry out specific aspects of the writing process;
- In the revising/editing stage of the writing process, all the dyslexic writers perform differently compared with percentage of time on task by the students in the Torrance research;
- In the translating stage of the writing process, students B, C, E, F and G performed significantly differently compared with the percentage of time on task by the students in the Torrance research;
- Six of the seven dyslexic students performed differently when proof-reading compared with the percentage of time on task by the students in the Torrance research;
- No single dyslexic writing profile type emerges;
- Individual deficits in working memory and speed of processing had a direct effect upon aspects of the writing process;
- The compensatory strategies employed were individual and supported discrepancies in the individual cognitive profile.

Therefore, these findings demonstrate that the intrasubject data show that there are deviations from the norm which highlight that these writers are unusual. Single case analysis would suggest that 'the dyslexic writers, in fact, present a different writing profile' (p.240) which 'can be directly attributable to deficits in their individual, cognitive profile' (p.241). The individual compensatory ways of working illustrate the case studies use 'top-down control of the executive resources which affects performance in the writing process' (p.243) and show individual strategic functioning to cope with the planning, translating and editing stages of the writing process.

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