University of Southampton

Faculty of Social Science

School of Education

Using Graduate Capital to Understand Chinese Doctoral Students' Self-perceived Employability

by

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Thesis for the degree of Doctor of Philosophy

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Abstract

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This thesis adopts a mixed method approach to explore Chinese doctoral students' self-perceived employability which associates with their understanding about the rule of graduate labour market. Utilising Tomlinson's graduate capital approach (i.e. human, social, cultural, identity and psychological capital), this study assessed Chinese doctoral students' (N=234) perceptions of self-perceived employability and the key dimensions of the forms of capital via validated psychometric instruments. Semi-structured interviews were conducted with students (N=31) to explore the social construction meaning of employability that these students gave to their perceptions and actions.

This study sheds light on the social, educational and labour market contexts from which Chinese doctoral students' perceptions of their own employability and the scope of the wider external labour market emerged. This study highlights the positional competition is the most common feature when Chinese doctoral students approach to their desired and target occupations in the labour market. They have to obtain the relative positioning in the job competition, which is still with its own set of social and labour market rules. Four main player tactics were identified in relation to how these Chinese doctoral students obtain the positional advantages: attending prestigious higher education institutions (HEIs) to access its opportunity structure and resources; achieving the relative academic performance over other PhDs; gaining the knowledge, skills and performance that employers in the highly-skilled occupational fields want; always improve one's employability that aligns to the desired or target occupation. In addition, the findings reveal that there are positive relationships between forms of capital and self-perceived employability. It suggests that

Chinese doctoral students possessed the forms of capital, which could be able to confer the advantages onto employability management and career-readiness. A thorough understanding of Chinese doctoral students' self-perceived employability may bring the practical implications for relevant stakeholders when they embed graduate capital into PhD students' employability strategy.

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Research Thesis: Declaration of Authorship

Print name:	Manli Xu
Title of thesis:	Using graduate capital to understand Chinese doctoral students' self-perceived employability

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work have been published.

Signature: Date:

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Chapter 1 Introduction

1.1 Background of the study

Having benefitted from highly specialised research training, individuals who have a PhD are invariably to be treated as the key players in the labour market (Schwabe, 2011; Auriol *et al*., 2013), and their important role in creation, implementation and diffusion of knowledge and innovation is widely accepted by society (OECD, 2010; Group of Eight, 2013). Thus, they have become a target group of policy interest as they are expected to play an important role in a knowledge-based economy (Auriol *et al*., 2012).

The project of Careers of Doctorate Holders (CDH) was initiated by the OECD, the UNESCO Institute for Statistics and Eurostat. This project was interested in the issue in relation to the steady increase in the number of doctoral degrees being awarded across OECD countries, and how were the employment outcomes of the doctorate holders in the labour market. The evidence of CDH project highlighted the contribution of doctoral graduates to science, innovation and economy as well as their high relevance to different stakeholders, such as policy makers, governments, prospective employers and doctoral students themselves (Auriol, 2010). However, CDH project reported that the knowledge and understanding of post-PhD employment might be limited because that there were certain challenges to collect the data from doctoral graduates among participating countries (Auriol *et al*., 2013). In addition, Schwabe (2011) argues that the empirical research on doctoral graduates was limited and sparse.

In China, the crucial role that doctoral graduates play in contributing to knowledge, science and innovation has been regarded as a policy concern, which has been highlighted in the Academic Degrees Regulations (Standing Committee of the National People's Congress, 2004). According to the policy document, doctoral graduates are required to be: 1. having a firm and comprehensive grasp of basic theories and profound and systematics specialised knowledge in the discipline concerned; 2. having the ability to undertake independent scientific research; 3. and having made creative achievements in science or in a special technology (Standing Committee of the National People's Congress, 2004). As can be seen from these requirements for doctorate holders, they are expected to be trained as specialists in their disciplinary field. In addition, they are also expected to use highly specialised research capacity to facilitate the development of sciences, technology and knowledge.

Many studies have demonstrated the link between the performance of highly skilled workforce in the labour market and their contributions to the technology innovation and economic growth, thus

it is becoming increasingly compelling to examine and evaluate the performance of doctorate holders in the labour market (Neumann and Tan, 2011). Based on the number of doctoral students shown in the National Bureau of Statistic of China, it was found that the proportion of doctoral students registered and awarded has experienced a rapidly growth at national level. There was approximately a 40% average annual growth of the number of doctoral degree recipients across all disciplines between 1998 and 2006 in China (Cyranoski *et al*., 2011), which resulted in much criticism of questioning China as a 'PhD factory'. However, there was not much known about Chinese doctoral students and their employment in the academic field. There were only 34 articles in the China National Knowledge Infrastructure (CNKI) database by searching the keywords 'PhD', 'employment' and 'employability' in Chinese by June 2020. In addition, there were only a handful surveys focusing on the post-PhD employment in China, they were: National Survey on College Graduate Employment by the Institute of Economics of Education (Institute of Economics of Education, Peking University, 2011), A Report on the Doctoral Quality in China (Academic Degree Committee of the State Council, 2010), and some reports from the Chinese Ministry of Education. Among all the surveys mentioned above, A Report on the Doctoral Quality in China (Academic Degree Committee of the State Council, 2010) has the most comprehensive national level data on employment outcomes of doctoral graduates. However, much discussion within the report were only focused on the efforts of Chinese governments in nurturing and training doctoral students to be qualified academics or researchers, such as providing training for doctoral students in teaching and publishing papers, and little attention was paid to the individual perception of employability.

The education and research training for doctoral students requires a considerable amount of investment of time and resources. Given the gaps in literature and available dataset on doctorate holders globally and nationally, it is argued that more attention needs to be paid on this specific population. This thesis explored the subjective dimension of Chinese doctoral students' employability, more specifically, it investigated students' understanding of how to play the graduate labour market entry game. Theoretically, it develops the analysis based upon the conceptual framework developed by Michael Tomlinson (2017a).

1.2 Changes in the graduate labour market in China

Within the national context of China, there are significant changes in the shape of the graduate labour market. The requirement for workforce in the knowledge intensive fields in China in the recent decades is becoming increasingly higher, but the increasing rate in supplying job opportunity at the corresponding level is much lower. In addition, the relationship between higher education

(HE) and the graduate labour market has changed dramatically from its historical link. Particularly, the role of HE in the knowledge economy is clear to see across the HE policy document in China (Yue, 2014a; Liu, 2014), which has heightened the sense of fierce competition amongst the graduates. According to Liu (2014), both the implementations of two-way selection mechanism and the expansion of HE have great effects on all graduates, HE sector, and the domestic graduate labour market.

With the national economic development, the Chinese government has also gradually reformed the political, cultural and educational systems (Liu, 2014). The implementation of two-way selection mechanism in employment was one of the earliest governmental actions, which aimed to address the issues about graduate employability and employment within the national context. It was also the sign that showing graduates in China have to compete for limited education resources and job opportunities within its social, cultural and labour market context. The two-way selection mechanism was proposed by the National Educational Committee, Planning Committee, and Ministry of Finance in 1989, which refers to that graduates would need to choose jobs independently and employers could select potential employees based upon their personal merits. Specifically, two-way selection mechanism shifted graduate placement system in China from a central planning system where graduates would be assigned a job after graduation into a dual system where the majority of graduates need to follow a market-driven mechanism to find jobs by themselves (Zeng, 2004, cited in Liu, 2014). Under the decentralising scheme, the market is the key mechanism in allocating resources. In addition, it has seen that policy shifts have increased the financial costs for individual graduates in several aspects. For instance, all students were required to pay tuition fees, and no more free accommodations or monthly allowances would be provided (Liu, 2014). Thus, critic argued that 'market forces are being adopted to generate additional resources to run education' (Mok, 2000, p. 122).

On the basis of two-way selection mechanism, graduates in China were no longer assigned to specific jobs by government, while employers and graduates could mutually select each other following the process of marketing competition (Yue, 2014a). In the spirit of the market-driven mechanism, the competition is virtuously linked to the graduate labour market entry rule, meaning that individuals are expected to maximise their own economic potential and increase life chances through the initiatives of gaining education, knowledge and skills. The focus on the market-driven mechanism also contributed to the competition amongst the higher education institutions (HEIs), which challenged on grounds of HE quality, graduate employability development and connections to employers. Under the dual system, the investment in HE was undertaken by the nation and individual graduates, and HEIs are expected to serve as the providers of market-oriented education that connecting graduates and the labour market (Liu, 2014). After the implementation of two-way

selection mechanism, the decentralisation scheme has enforced marketisation and adjusted institutional governance in China (Mok, 2003).

Emerging evidence suggests that market-driven mechanism since then has functioned significantly in the Chinese HE system and the graduate labour market, which has directly led more people would like to invest themselves with university degrees in an attempt to get a good job that they want (Liu, 2014). The most practical reason for individuals to go to university is evident in the consensus that 'the higher the educational qualification, the lower the risk of being unemployed' (Neumann and Tan, 2011, p.603). Moreover, the rise of knowledge-economy was heralded as an opportunity for domestic political and social environment to usher in the era of 'war for talent', which has exerted considerable impact on individuals' understanding of the bond between education, employment and rewards within the socioeconomic context that they are located in. This is consistent with the view of Durkheim, presenting a dominated understanding of education, employment and social mobility was based on a 'meritocratic competition' (Brown and Hesketh, 2004). In addition, much of the human resources management literature highlighted the 'war for talent', which also raised the issue about employability and careers within the wider labour market for the skilled and knowledge workforce (Michaels *et al.*, 2001). The shift towards the dual system indicated that graduates were no longer entitled to cadre positions nor would be assigned specific jobs by government, whereby accessing to HE was conceived as a source of meritocracy when they experience a mutual selection. As a consequence, market-driven mechanism redrew the link between graduates, HE sector and the labour market.

Although people are in hope of obtaining the economic value of the degree-level qualifications they hold, the majority of the existing research suggested that a university degree could no longer be traded-off for highly paid, highly-skilled work in the changing labour market context (Brown and Hesketh, 2004; Brown *et al.*, 2003). According to Liu (2014), HE was only accessible to small proportion of the population in China before the late 1990s. However, the increasing demand for knowledge workers and the Asian economic crisis in the late 1990s accelerated the government actions towards expanding HE participation nationally. The Chinese HE system moves to the great expansion since 1999. A document titled 'Action Plan for Education Promotion for the 21st Century' stated clearly about government strategies and the HE expansion objectives, aiming to achieve a national enrolment reaching 10% by the year 2000, and 15% by 2010 (Liu, 2014). According to the Ministry of Education (MOE) report, the HE expansion in China contributed to the national enrolment rate increased from 2.7% in 1978 to 45.7% in 2018 (MOE, 2018). The most recent statistics clearly indicated that the number of students who were enrolled at undergraduate level increased nearly six times by 2019 from 3 ,149, 273 to 17 ,508, 204 (MOE, 2020). In similar, it has seen that HEIs increased in number and size. The rapid increase in the number of university-

educated workers and HEIs reflects the Chinese government's intentions in continuing to view the knowledge workforce as the essential to sustain nation's economic growth (Mok and Wu, 2016).

The concept of knowledge-driven economy has become very much established in Western economies, but it is now also clearly a topic of much interest in other parts of the world. As Mok and Wu (2016) state, many countries believe that the development of HE sectors and nurturing educated workers play a key role in competing with other countries in the global knowledge economy. Demanding more highly skilled and well-educated workforce is not only for individual countries to achieve their own social and economic development, but also to fit in the environment of global economy (Brown and Hesketh, 2004; Clarke, 2017). However, critic argues that the global recession and the rising prominence of the BRICS nations (Brazil, Russia, India, China and South Africa) have challenged the assumption about whether there is a high-skill, high-wage economy and raised further issues in relation to global graduates competition (Gordon, 2013). In particular, the new economic players, for example China, have evolved their HE and the indigenous skills base of their economies (Tomlinson, 2017b), whereas the changing labour market context brought about risks and uncertainties. For example, some researchers questioned on the viability of mass HE in its current form: failing to obtain the economic returns to the degree that graduate invested (Green and Zhu, 2008), and raising the rate of graduate unemployment and over-education (Liu, 2014).

Since 1999, the expansion pace of Chinese HE has even accelerated afterwards. It was government's presumption that the increased enrolment would be able to absorb more young entrants from a wide range of social backgrounds, thus reducing the pressure in the labour market (Liu, 2014). Yet the great expansion and 2008 economic crisis resulted in some unintended consequences on the domestic labour market. Within such changing context, a university degree could not be seamlessly translated into a graduate occupation. The most direct influence on graduates was that finding a job has become more difficult than before (Liu, 2014). It was once axiomatic to suggest that graduates are more employable than non-graduates. However, the consequence of graduates crowding into the job market with a university degree was the inflationary pressures, thereby they have to compete with the increased number of others who have the similar qualification and skills (Mok and Wu, 2016). Additionally, Liu (2014) found that students prefer to find jobs in the economically more developed regions, which might increase the competitions for graduate-level jobs among university graduates in those areas.

The increase in the supply of graduates and the decrease in the demand of the jobs have also challenged the assumption about the possibility of the 'equality of opportunity' and 'equality of outcome' in a mass system. As argued by Gordon (2013), the under-represented group benefitted from the widening participation policy, but there still was a bifurcation in university participation.

The widening participation was aiming to raise standards of education achievement and reduce the achievement gap between rich and poor. However, there was evidence suggested that students with disadvantaged backgrounds were more likely to attend universities with lower ranking, and vice versa. The point made by Gordon was that social stratification within universities has undermined the attempts of less privileged group in improving their social mobility. Some researchers focusing on social class delved more into this topic, indicating that those who succeed in the graduate labour market are those who were able to capitalise the social and cultural assets to secure access to experiences valued by employers (Burke, 2015; Bathmaker *et al.*, 2013). In the Chinese context, Yue (2014a) suggested that the students from advantaged backgrounds were more likely to gain educational resources and job opportunity via social capital and economic capital from their families. For example, Liu (2014) found that with the rise of the unpromising employment situation, graduates and their families might utilise informal mechanisms, which relied on so-called 'guan xi' such as personal relations and 'back doors'. In addition, there is evidence of an emergent trend towards viewing the investment on the overseas studying experience as cultural capital, which enable to distinguish themselves from others (Li, 2013). It is argued that graduates from the less privileged backgrounds are given the opportunity to university in a mass system, but they still struggle to be competitive if they lacked an understanding of the cultural nuance of the labour market entry rule.

Except the massive increase in the number of graduates at the undergraduate level, the great expansion has witnessed the growth in the number of graduates who took a research degree. In order to realise the employment pressures, Chinese government has started certain controls to postpone the age cohort entering the graduate labour market by expanding its postgraduate level study (Kuang and Liu, 2006). Although China has been questioned producing too many PhDs (Cyranoski *et al*., 2011), it was clearly shown that the structure of gender and age in doctoral groups has experienced a great change since the expansion (Academic Degree Committee of the State Council, 2010). There was evidence indicated that the ratio of female doctoral students raised sharply, which increased from 21.9% in 1998 and to 35.7% in 2006. It was also found that the percentage of doctoral students in the age around '31-36' years old decreased from 47.1% in 1996 to 34.6% in 2006, while the ratio of age over '37' increased. Additionally, the report suggested that the domestic PhD labour market has been divided into several sectors, including the business enterprise, government, HE, education, research institution and others. It was seen that HE sector and research institutions apparently were the primary choices of PhD students amongst the employment destinations shown above, which constituted 40% and 10% respectively, and followed by business enterprise and government (Academic Degree Committee of the State Council, 2010). By analysing the secondary data received from Doctoral Quality survey (Academic Degree

Committee of the State Council, 2010), Fan *et al*., (2011) found that doctoral graduates were more likely to move to metropolis, as the highly-skilled jobs they wanted are primarily in the areas where are economically and scientifically more advantaged, such as Beijing, Shanghai, Guanzhou and Shenzhen. Unfortunately, this large-scale survey which focused on doctoral population in China has not been updated since 2010. In contract to the huge number of studies focusing on graduates at the undergraduate level, empirical evidence related to the doctoral graduates and employment is limited and sparse.

Within the political, social and labour market context that this research is located, it has seen that the most recent phase of labour market situation is strongly associated with the stage of socioeconomic development of the country. The so-called knowledge-driven economy may offer the opportunities for well-qualified workers to trade-off their talents and expertise, but individuals have to pay more efforts in negotiating the challenges and uncertainties (Tomlinson, 2017b). With the rise of a country's economy and competitiveness, it has seen the increasing shift towards the creation of new technologies and industries as well as the new demand on to the knowledge workforce. According to the CDH statistics, there was still a weak association between the proportion of doctoral graduates in the labour force and a country's research & development (R & D) intensity (Auriol *et al*., 2013). Thus, the increasing demand on educational level is stemmed from the government's belief that the increase in HE knowledge and skills within the labour force can contribute to the upgrade and innovation of products (Kuang and Liu, 2006). In line with the requirements on doctoral gradates, it was shown that the research training has become viewed by government as a supply trigger in boosting national economic growths and scientific competitiveness. In addition, it has seen that the emphasis on recruiting 'the best' might lead graduates to find a way to meet the 'knowledge workforce' requirements of the wider sets of the labour market. This employers' recruitment strategy is closely related to a logic of exclusion, suggesting that the best companies recruit the best graduates from the best universities. For example, there were growing human resources management studies indicated that leading-edge companies have been found to focus recruitment efforts on the top-ranking universities (Gordon, 2013), which raised the issue about the stratification of universities is reflected in the labour market opportunities of graduates. Moreover, Gordon (2013) argues that this phenomenon is not limited to leading-edge companies as the expansion of HE has extended the effects of inflationary throughout the graduate population. Yet little is understood about how the stratification of HE is reflected in the labour market opportunities of PhD holders globally and nationally.

In a mass system, the policy discourse understood employability as the matter of individuals (Moreau and Leathwood, 2006). Individuals are offered the opportunity to go to university, but it is their choice to make human capital investment in themselves and future opportunities in the

labour market (Boden and Nedeva, 2010). The policy-makers also expect to see more work-ready graduates when they exit their degree studies and with demonstrable levels of knowledge and skills (Clarke, 2017). As a consequence, the HE has become viewed by policy-makers as the central of the supply of changing knowledge and skills that required by the workplaces (Neumann and Tan, 2011; Chapman and Austin, 2002). A range of generic skill-based learning outcomes and workplace-related skills have also been adapted and embedded into university's degree study in order to respond to the increasing pressure from governments and the demands of employers (Clarke, 2017). However, the extent to which generic skills can be transferred from university to workplace have been questioned (Hinchliffe and Jolly, 2011).

For doctoral graduates, there were empirical evidence indicated that approximately one half of the PhD holders internationally do not take the traditional career trajectories in the labour market (Barnacle and Dall'Alba, 2011). But whilst the ongoing discussion in China on doctoral graduates' employability still focused on skill-dominant approach, in terms of the extent of which doctoral students' knowledge, skills, abilities, and other characteristics (KSAOs) and the quality of doctoral training contributed to their career success in academia (Academic Degree Committee of the State Council, 2010). The PhD qualification used to prepare for a small group of individuals to make the contribution to the society, now has become more accessible since the expansion. However, the expansion of postgraduate level has not significantly increased the pool of talent, PhD employment and employability have become scrutiny in the local context. On the one hand, the graduate congestion still challenges the assumptions about the possibility of suitable employment for all those PhD holders who develop the appropriate employability skills. On the other hand, it questions how to obtain a relative chance of acquiring and maintaining employment. There was evidence indicated that the domestic Chinese doctoral students also have to face the intensified competition with the overseas returnees who also had appropriate credential and skills (MOE, 2016). As more PhD holders compete in the labour market, the issue about how 'employable' they are has become more obvious the urgent than in the past.

Some scholars who focused primarily on the UK and Australia context suggested that it is also important for individual graduates to realise how demand side factors has taken place in the labour market, such as number and type of job vacancies, degree of competition for jobs and geographical mobility (McQuaid and Lindsay, 2005; Clarke, 2017). This is because number of vacancies of job and where those vacancies located is influenced by the macroeconomic factors within the local labour market (Clarke, 2017). It also reflects individual's perception of finding a way to navigate the potential challenges and take advantage of the resources to achieve the desires and aspirations (McAlpine and Amundsen, 2018).

Achieving success in this changing labour market context not only depends on acquiring knowledge and skills, but also depends on the employability of others. The great expansion has extended the inflationary effects throughout the graduate population, thereby graduates to understand the 'dual of employability' is a necessary corrective to the overoptimism of the pundits of the knowledge-driven economy (Brown and Hesketh, 2004).

1.3 Purpose of the study

According to Cuthbert and Molla (2015), there is a PhD crisis discourse internationally, which is attributed to the fact that universities are producing too many PhDs for too few academic jobs, and graduates lack skills to signal employers outside of academia. Particularly, China has been questioned producing too many PhDs since the expansion of HE (Cyranoski *et al*., 2011). The increase in the number of PhDs is not only caused by the domestic demand for highly educated workforce to bring national economic development, but also is attributed to the sequential effect of widening access for undergraduate and master level since 1999. In addition, domestic Chinese doctoral students have to face the increasing competition with the overseas returnees who also had appropriate credential and skills (MOE, 2016). Much of the existing research on Chinese doctoral students have strongly focused on post-graduation performance, especially on applying the type of employment and the level of salary in evaluating individual's employment outcome (Academic Degree Committee of the State Council, 2010), in which implies a strong political interest in and scrutiny of Chinese doctoral student's employability towards developing a career in academia. However, what is missing from the current literature is a consideration about how Chinese doctoral students construct and manage their employability when they prepare for and approach to the graduate labour market in a more intense 'war for talent' (Brown and Hesketh, 2004, p.2). It has been found that due to the difficulty of accessing and tracking doctoral students as well as the lack of sufficient data in this field, the self-perceived employability of Chinese doctoral students is under-researched. As the weakening currency of credential and the intensification of competition in the labour market, where student's perception of their own employability is of particular importance to further the understanding of the complex 'war for talent' in the knowledge-driven economy. Therefore, the first research aim was to address the research gap in the knowledge, to explore how aware are Chinese doctoral students of their own employability and the labour market competition within the political, social and labour market context that they are located in.

Drawing on both graduate employability and the broader employability literature, an attempt has been made in this study was to utilise a graduate capital approach to explore Chinese doctoral students' self-perceived employability which associated with their understanding about how to play the labour market entry game. This graduate capital was developed by Tomlinson (2017a), which consists of five forms of capital – they are human, social, cultural, identity and psychological capital. Depart from the dominant skill approach on employability, the forms of graduate capital are conceptualised as crucial resources, which are acquired through graduates' lived experience (Tomlinson, 2017a). The graduate capital model depicts two important dimensions – they are the key resources related to each form of capital, and how these resources could be utilised when students make a labour market transition. Tomlinson's model was developed to study graduate's employability, but it has not been applied to Chinese doctoral students. Underpinned by this capital approach, the second research purpose was aimed to explore whether this graduate capital theory can be used for doctoral students as well as researching Chinese context, and whether this theory is applicable to the wider range of study sample and context.

Given the focus on Chinese doctoral students' employability and how they would be able to make a successful transition towards the labour market, the final purpose of this study was to explore what factors may influence students' self-perceived employability in the early form of negotiation with the labour market. The rationale of using graduate capital approach in this study is because it emphasises on the significance of the multiple resources which are the constitutive of students' employability. There are the resources graduates acquired across different domain, and further confers the advantages onto their employability and career-readiness (Tomlinson, 2017a; Tomlinson *et al*., 2017). The strength of graduate capital approach is that it depicts a student's immediate relations with the labour market. Therefore, this study was interested in exploring how well Chinese doctoral students understand the value of forms of capital and how they purchase and utilise these resources when they start the early form of negotiation with their target occupation. And how forms of graduate capital could be applied by wider range of the stakeholder to help their doctoral students in making a successful transition towards the labour market.

1.4 Research questions

In order to address these research aims, this study was guided by the following research questions:

1. How do Chinese doctoral students perceive their own employability and the competition in the labour market?

a) How do Chinese doctoral students understand the labour market competition for themselves?

b) What do PhD student's employability mean to them?

c) What do Chinese doctoral students do to manage their employability in respond to the competition?

2. How do Chinese doctoral students understand and utilise forms of graduate capital to play the labour market entry game?

   a) How do Chinese doctoral students understand the value of each form of graduate capital?

   b) How are forms of graduate capital been purchased and utilised when Chinese doctoral students to play the labour market entry game?

3. What may influence Chinese doctoral students' self-perceived employability?

a) Is Chinese doctoral students' self-perceived employability influenced by they capture and mobilise the forms of graduate capital?

b) Is Chinese doctoral students' self-perceived employability influenced by the demographic and social background?

1.5 Contribution of the study

This study has contributions to the knowledge, theory and methodology in the following aspects.

The research literature in the Chinese context is sparse. This study contributed to the current understanding of the social construction meaning of employability by Chinese doctoral students. Drew upon the quantitative and qualitative data, the analysis of this study added empirical evidence to knowledge by identifying how the graduate labour market competition is set up, and how Chinese doctoral students construct and manage their employability to respond to the competition within the political, social and labour market context that this research is located in. This study highlighted that the PhD has become the access rather than a positional good, which organised the route into the highly skilled occupational fields. Thereby, Chinese doctoral students perceived the necessity to equip more player tactics to obtain advantages over others in competing for limited managerial and professional employment. They saw the social construction of employability as a positioning competition, meaning that they have to adopt more player tactics to meet the demands of the employers and obtain the relative positioning in the competition for jobs. In addition, this study suggested that the intensified competition in the graduate labour market might influence

Chinese doctoral students' employability strategies. Specifically, these strategies reflected Chinese doctoral students' player tactics, which were on the basis of the university brand, ranking, the relative performance and right signals, rather than merely focus on academically-qualified and individual merit. Whilst the perceptions and actions might diverse, there were several significant themes and results suggested the way that Chinese doctoral students constructed the positional competition to obtain the relative positioning of others, as summarised following:

- University brand. Their institutional profile was perceived to influence the relative positioning in the graduate labour market, because it might determine access to opportunities and educational resources. This study highlights the value of a degree awarded by a prestigious university, such as a 'Project 985' or 'Project 211' institution.
- The relative performance. They needed to achieve a relative academic performance over other PhDs, which is closely related to their selection of career pathway and the demands of the chosen or target occupation.
- Right signals. They had to know what knowledge, skills and performance employers want in highly skilled occupational fields.
- Always improve. They had to have agency in responding to the demands of their own employability development.

The research on PhD student employability has been very limited. By identifying the formation and application of Chinese doctoral students' forms of graduate capital, this study contributed to the current understanding of Chinese doctoral students' employability in the following aspects:

- Human capital. Chinese doctoral students developed certain occupational-specific human capital that aligned with the highly skilled employment they wanted. It was found that they developed certain soft skills which aligned with their chosen occupation; however, only a few of them were able to use it as an employment signifier.
- Social capital. Chinese doctoral students capitalised social relations and networks to enhance their early stages of labour market knowledge. It was found that Chinese doctoral students were more likely to use strong ties rather than weak ties. It was also found that different disciplines' study climates and supervisors' career guidance might influence their networking behaviours.
- Cultural capital. Chinese doctoral students developed certain embodied capital which aligned with that of academics. They were also clearly aware of standing apart from others by adopting more player tactics. This is because they largely developed this cultural-valued knowledge during their PhD study. However, the value of this cultural capital might be

blunted because most of them shared similar cultural resources on how to get a job in academia.

- Identity capital. Chinese doctoral students with an emerging academic identity were more likely to engage actively in early stages of career exploration and investment to align themselves with their chosen occupation. Gender differences were also found in the formation of identity capital, because family concerns might influence female doctoral students' career aspirations and commitment towards developing careers.
- Psychological capital. Chinese doctoral students equipped themselves with certain coping strategies to adapt the challenges and setbacks during PhD study. However, they were not yet in their job search, so whether they had the capacity to adapt to a fluid job market and withstand challenges was still unclear, although they felt that they had gained enough resilience through past experience.

Moreover, this study made a significant contribution to the graduate employability debate. It focused on analysing the subjective dimension of doctoral student's employability, and develop its analysis alongside the conceptual framework which conceptualised graduate employability as the constitutive of multiple resources. Firstly, it has seen that there were strong associations between Chinese doctoral students' self-perceived employability and the forms of capital (multiple resources). Consistent with the previous studies (Tomlinson, 2017; Hirschi et al. 2017), this study emphasised the value of graduate capital to be used for employability management. The CFA (Confirmatory factor analysis) was conducted to ascertain the model fit with the Chinese doctoral students' data, which consisted of a one factor structure (higher-order constructs: human, social, identity, psychological capital and self-perceived employability) and second-order factor structure (sub-dimension constructs: key resources related to each form of graduate capital, and internal and external employability) by using the AMOS (Arbuckle, 2008). The CFA results suggested that the second-order factor structure revealing the better ability to explain the relationships among constructs with Chinese doctoral students' data, which was further confirmed by the regression analysis. In the qualitative interview, it was found that most of interviewees might not be able to speak actual name of each form of graduate capital, but they were clearly aware of the value of the key resources because 'these resources encompass a range of educational, social, cultural, and psycho-social dimensions and are acquired through graduates' formal and informal experiences' (Tomlinson, 2017a, p.338). Thus, it is argued that the graduate capital was accessible as they are easily acquired from individual's lived experience. Given the changing global economy, skill-oriented approach might be become outdated, so it is worth considering whether the conceptualisation of multiple resources could be used for wider range of context in researching employability issue. For example, lifelong learning.

In addition, the analysis of this study tested and elaborated Tomlinson's graduate capital theory in a Chinese context. It was found that Chinese doctoral students mobilised the forms of graduate capital in the early form of negotiation with the labour market that conferred advantages onto their employability management and career-readiness. The quantitative results suggested that the strong and positive correlations between forms of graduate capital and self-perceived employability, which means students with higher level of forms of graduate capital is more likely to have the high level of self-perceived employability. It also contributed to reveal the key resources related to forms of graduate capital enabled to explain 55.7% of the variance of self-perceived employability. The qualitative findings contributed to graduate employability theory by showing why mobilising different forms of graduate capital is significant to open up the opportunity structure within the context of mass HE, as summarised following:

- Human capital – developing occupational-specific human capital to become professionals, and being confident to access to their chosen or target occupations.
- Social capital – developing social relations and networks to enhance labour market knowledge and help to open up opportunities to obtain access to the target labour market.
- Cultural capital – appreciating the culture of the target occupational context and being able to present themselves in a credible way to align with their target occupation and to stand apart from others.
- Identity capital – emerging career identity and developing strategies to accomplish their goals towards their target occupation.
- Psychological capital – equipping themselves with coping strategies and a positive mind-set to adapt to challenges and pressures.

Through using CFA in validating several existent psychometric scales, this study contributed to the validation of self-perceived employability scale on Chinese doctoral students in the context of China. The use of quantitative and qualitative data in this study also contributed to augment findings. For instance, it discussed and added insights into the understanding of Chinese doctoral students' educational and wider life experiences, as well as the changing labour market. In addition, this study found the possible elements of graduate capital not included in the current literature, but it would be helpful to further research. By testing and elaborating the graduate capital in a Chinese context, the empirical evidence of this study suggested that government's intentions and actions exerted the significant impact on graduates, HE sector and the labour market. In particular, the policy shift might have the impact on graduates to find a way towards the desires and aspirations. Thus, it is argued that the political dimension of the graduate employability and labour market is an important aspect in researching a Chinese context.

1.6 Definition of concepts

The following definitions are given to provide an operational terminology of key concepts used in this study.

1.6.1 Chinese doctoral students

Doctoral student usually refers to who 'conducted a coherent programme of research which made a significant original and independent contribution to the knowledge base of the research area and demonstrated a knowledge of the current literature of the research area' (Wilson, 2002, p.2). In this study, the concept of 'Chinese doctoral students' refers to the doctoral student as described by Wilson (2002), but also are the people studying in HE institutions in China and having Chinese nationality.

1.6.2 Higher education

The concept of higher education used in this study refers to education at degree level and above that are provided by colleges and universities. For the purpose of this study, higher education will refer to the government funded universities in China.

1.6.3 Mass higher education

The mass higher education or the massification of higher education refers to widen the higher education participation in order to meet the demand of educated workers and national economics needs. In this study, the focus placed on the expansion of higher education policy and its effects on the doctoral students, the employment labour market and universities in China. More details please see 1.2 Changes in the graduate labour market in China.

1.6.4 Graduate capital

Graduate capital, developed by Tomlinson (2017a, p.338), conceptualises 'graduate employability as largely constitutive of the accumulation and deployment of a variety interactive forms of capital'. In his graduate capital model, there five different forms of capital included. They are human capital, social capital, cultural capital, identity capital and psychological capital. These five capital can be understood as the key resources, which will confer the benefits and advantages onto graduates in making the transition to the labour market.

1.6.5 '985 projects' institution

Project 985 is a project that was first announced on May 4, 1998, in order to promote the development and reputation of the Chinese higher education system by founding world-class universities in the 21st century. The project involves both national and local governments allocating large amounts of funding to certain universities. In the initial phase, there were 9 universities including in the project. The second phase, launched in 2004, expanded the project until it has now reached 39 universities.

1.6.6 '211 projects' institution

Project 211 is the Chinese government's new endeavour aimed at strengthening about 100 higher education institutions and key disciplinary areas as a national priority for the 21st century. In total, 112 universities were included in the project.

1.6.7 The 'Double world-class' project

The World First Class University and First class academic Discipline Construction was known as Double First Class for short. It is a tertiary education development initiative that was launched in 2015 by the People's Republic of China government. The full list of the sponsored universities and disciplines was published in September 2017, which includes 42 first class universities (36 Class A and 6 Class B institutions) and 465 first class disciplines (spread among140 universities including the first class universities.

1.7 Personal context

Interest in this area has crystallised from my experiences as a student, a job seeker, and latterly become a postgraduate research student studying in the UK. Reflecting on my previous experiences indicated the importance of understanding one's ability and labour market knowledge. I majored in Primary School Education in a normal university in China. Later on, upon completion of the bachelor degree, I moved on to purse my study for a master's degree in UK. However, the master qualification did not bring me the benefits as I thought, and it was found greater dilemmas when I came back to China to find jobs. For the people graduated from normal university in China usually followed by the route from the recruitment through public examination to get a teacher position. Although having a master degree abroad, I did not get any benefits to stand a chance with other graduates when I back to China. Firstly, the teacher certificate (here refers to the teacher certificate

for primary/secondary/high school) is no longer just entitled by the individuals who graduated from normal speciality, which means if people have ability to obtain the teacher certificate, they could also have a chance to compete for the teacher positions. Secondly, some teacher's recruitment from public channels have set the priorities for the 'graduating student'. The final and worst is I feel my teaching skills is out of practice for a long time since I went to the UK. In addition to finding jobs in education sector, I attempted to search the jobs from business enterprises. Nevertheless, sending the resume aimlessly made me feel upset around that time, meanwhile also arising my concerns on how and why other graduates succeed in the labour market.

Looking at the majority of my friends and classmates, lacks the knowledge of wider society outside university and family causes the biggest issue in making the transition to the labour market. The potential career pathway to the large extent was determined by their parents after the college entrance examination in China, regardless of whether students are interested in the chosen discipline. Within the context of mass HE, graduates are no longer entitled the graduate premium in the labour market, which reflected the issue related to the inflation of credential. Thus, the initial driver for me to carry out the study related to employability is attributed to my experience and interest. In addition, the contribution made by doctoral graduates to the society has been widely acknowledged in the literature, but very few researches focused on the employment outcomes of this group.

As a PhD student, I am personally interested in having more comprehensive understanding about own employability and how to become more employable. It is glad to see the use of graduate approach also encourage me to broaden my scope of horizons and job market knowledge. As I continued to interview more and more Chinese doctoral students related to how they understood and utilised forms of graduate capital in managing their employability and career-readiness, I became increasingly clear about the value and scope of each form of graduate capital, which also help me to realise there is a remarkable gap between mine and theirs. It is therefore I sought to seek support from career and employability centre and developing my research capabilities and abilities through different work-related experience (i.e. data analyst, academic and language advisor and student ambassador).

Chapter 2 Literature review

2.1 Introduction

This chapter is divided into two parts. It begins with a thorough discussion about the literature of graduate employability and the employability in a broader view, which consists of what employability is and how to measure employability. The second part focuses on graduate capital approach. In this part, it offers the illustrations to show the formation of forms of graduate capital and explain why mobilising various forms of capital is significant to open up graduates' opportunity structure within the context of higher education expansion.

2.2 Conceptualising graduate employability

2.2.1 Exploring graduate employability

In a review of the history of the concept of employability (Forrier and Sels, 2003; McQuaid and Lindsay, 2005), the involvements of different parties (i.e. government, higher education sector, and individual) have been identified. The objective of government is to improve the national employment rate. Hence, through adopting a skill approach which aims to promote lifelong learning, the government intends to enhance the employability of individuals from different backgrounds (Guilbert *et al*., 2016). For instance, in order to increase the employment opportunity of the unemployed and marginalised groups such as youth in difficulty, minorities and disabled, the UK government has focused on the development of basic transferable skills of these groups (Holmes, 2001). However, Tymon (2013) argues that the UK government focused too much on the employment outcomes rather than the employability, as it did not pay enough attention to the quality of jobs.

In response to the needs of labour market, higher education institutions drive a significant role on providing skills provision and offering the measurable student outcomes (Hinchliffe and Jolly, 2011). The higher education institutions are expected to prepare students ready for the graduate labour market, thus HEIs have great interests in improving graduates' employability. For example, the skills and attributes approach mainly dominates in both current practice and research agenda in the UK (Holmes, 2001; Holmes, 2015; O'Leary, 2017). As can be seen the evidence in the Dearing Report (1997), higher education institutions in the UK have been urged to grapple with the idea of government strategies and shifted towards a skill-based approach in their curriculum – 'Institutions

of HE begin immediately to develop, for each programme they offer, a 'programme specific' which … gives the intended outcomes of the programme in terms of: the knowledge and understanding that a student will be expected to have upon completion; key skills …; cognitive skills …; subject specific skills …' (Dearing Report, 1997, p.372). Considering this, Hillage and Pollard (1998) suggests that government and education policies should offer the support in individuals' deployment of professional skills, and they argue that more attention need to be placed on individuals who are facing professional transition or are excluded from the labour market. In their definition, graduate employability was described as 'knowledge, skills and attributes that graduates are expected to be able to demonstrate they have acquired in higher education' (Hillage and Pollard, 1998, p.1). In other definitions, there are similar distinctions between graduates and non-graduates based upon the skills and attributes that increase the chances of individuals to a positive employment outcomes in the graduate labour market (Boden and Neveda, 2010).

There are debates about whether graduate employability should be defined as skills and attributes which are expected to possess through students' engagement with the university degree courses (Yorke, 2006; Steur *et al*., 2012; Holmes, 2013). For Yorke (2006, p.8), he argues that employability is 'a set of achievement – skills, understandings and personal attributes – that makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy'. For Steur *et al*. (2012), they believed graduate employability should consist of four key dimensions. These four dimensions are reflective thinking, which refers to one's capacity to evaluate the complex situations and utilise the knowledge and skills as basis of personal judgement; scholarship, which represents one's capacity to link theoretical and functional knowledge in solving the complex problems; the moral citizenship, which refers to one's acceptance responsibility towards society; the final one is lifelong learning, which refers to one's capacity to adapt to unanticipated situations and develop new skills. In Holmes' (2013) term, he suggests three competing perspective on employability by adopting the 'possessive' (human capital), 'positioning' (social capital) and 'processual' (career self-management) approaches. To be more precise, Holmes' (2013) graduate employability as possession is in line with the definition of Yorke's (2006), which acknowledges the significance of acquisition of core skills, generic or transferable skills (Clarke, 2017). In addition, the impact of social class on individual's employment outcomes has been highlighted in the graduate employability as positioning (Holmes, 2013). In his view of positioning approach on graduate employability, the social class and family background are able to shape one's employability through both direct and indirect levels (Holmes, 2013). In contrast to Holmes' perspectives, Okay-Somerville and Scholarios (2017) doubted the relationship between one's social class and employability by arguing that 'social background has no direct effect on any indicator of employability' (p.1281). However, in their study, the social

background has been operationalized as parental occupation and education, thus they argued 'the effect of social background on graduate employability is hidden and institutionalised' (Okay-Somerville and Scholarios, 2017, p.1286). It was argued to critically look at Okay-Somerville and Scholarios's result. This is because when students from different backgrounds entering lower status institutions may cause the lower perceived external employability reported in the less prestigious 'new' universities in their employability (Clarke, 2017). In Holmes' (2013) third competing perspective on graduate employability, he argues that the knowledge and skills graduates acquired through a degree programme will frame the foundation of their graduate identity, which will also influence how they present themselves to recruiters. As noted by Okay-Somerville and Scholarios (2017), the key elements comprising in the procession is career self-management and the relevant individual behaviours such as career exploration, career support and networking.

In addition, higher education sector sheds light on individual attributes or 'the qualities, skills and understandings a university community agrees its students should develop during their time in the institution (Dacre-Pool and Sewell, 2007, p.214). In general, a common approach that has taken in the higher education sector to develop graduate employability is to embed the generic skills into the university degree programme (Clarke, 2017). However, this embedded generic skills approach has been widely critiqued (Cranmer, 2006; Clarke, 2017). Critics argue that this approach is overly simplistic, which only focuses on the acquisition of certain knowledge and skills that will ultimately result in graduate-level employment (Clarke, 2017). This is because the approach that carried out by higher education institutions such as providing students with a list of generic skills often failed to recognise the differences between different professions, organisations and cultural context. Furthermore, a large number of employability studies in the UK focused on matching the skills between what employers expect and what graduates offer (Tymon, 2013).

Regarding to doctoral students, Golovushkina and Milligan (2012) highlight the mismatch issue in their study which related to doctoral students' perceptions and the expectations of non-academic employers. Although previous research indicated that employers are expecting the commercial awareness and leadership management skills from doctoral students, none of participants identified these skills are important for developing their employability (Golovushkina and Milligan, 2012). This is because the structure and content of doctoral training has been critiqued as a form of academic apprenticeship (Park, 2005). Consequently, the issue around the extent to which these skills, which doctoral students acquired through their degree study, can meet the requirements of those employers outside academic field has received much attention (Golovushkina and Milligan, 2012). Additionally, Golovushkina and Milligan (2012) summarised a number of core competences that PhD candidates need to have based upon the previous studies on doctoral students. They are identified as 'subject-specific knowledge, commitment to career development, teaching skills,

communication and team working skills, ability to demonstrate the impact of research on society, and networking skills' (Golovushkina and Milligan, 2012, p.67). In addition, in an Australia industry view on postgraduate skills, Mullins and Kiley (1998) presented a list of skills ,which ranges from the general to the particular. However, critic argues that whether these skills can be developed within the time frame that is allocated for undertaking a PhD study is a problem (Craswell, 2007). Furthermore, critics also argue it is difficult for doctoral students to identify priorities and appropriate strategies to develop full list of skills during their degree study (Pearson and Brew, 2002). In this respect, it is worth considering what employability provision that higher education institutions could provide to doctoral students.

In contrast to focus on identifying and building specific skill set of doctoral students, this study would like to draw on a more holistic view from the broader employability literature to understand Chinese doctoral students' employability. This is because in a previous study, critics argue that despite the higher education in UK expanded in these years, the graduates from disadvantaged backgrounds are less likely to secure the highly desirable graduate jobs, while those jobs are still primarily obtained by those from privileged backgrounds (Brown and Scase, 2005). Likewise, Yue (2014a) found social capital still has a crucial impact on Chinese graduates' employment outcomes in the context of mass higher education. Despite the expansion of higher education, the graduates with privileged backgrounds have higher order of social capital which means they have more access to the job opportunity related information than those from disadvantaged backgrounds. In the context of expansion of higher education, it is important to understand the dynamic and socially mediated interactions that Chinese doctoral students have with the labour market.

McQuaid and Lindsay (2005) introduces the three key elements to understand the aspects of graduate employability. They are: individual factors, which refer to individual's skills and attributes; the personal circumstance, which refers to a range of socioeconomic contextual factors; and external factors, which refer to those that have influence on individual's employability such as labour market conditions. They argue that the employability 'should be understood as being derived from, and affected by, individual characteristics and circumstances and broader, external (social, institutional and economic) factors that influence a person's ability to get a job' (McQuaid and Lindsay, 2005, p.206). In their perspective, the primary focus is to understand the interaction between internal and external and its impacts upon one's ability to get a job, which means it is important to recognise the 'dynamic interaction of individual attributes, personal circumstances, labour market conditions and other 'context' factors' (McQuaid and Lindsay, 2005, p.207). Take Chinese labour market as an example, the supply outstripped demand issue is becoming worse nowadays, thus, employability is not a solely supply-side issue. In this regard, how individuals compete with others in the fiercer labour market is of critical importance in the context of 'war for

talent' (Brown and Hesketh, 2004). In particular, labour market conditions may determine that not all qualified graduates can gain employment (Brown and Hesketh, 2004). Clarke (2017) suggests that graduate identity is associated with how graduates understand their differentiation from other graduates in the labour market. Therefore, the concept of graduate employability is not limited to the understanding of individual factors alone, but also should include the recognition on ''interactive' employability in its truest sense' (McQuiad and Lindsay, 2005, p.207). Therefore, it is worth considering what social construction meaning of employability that Chinese doctoral students give to their perceptions and actions in the intensified competition in graduate labour market.

2.2.2 Measures of graduate employability

The increased interest in the topic of employability has resulted in the variety of measurements. Regards to the measurement of the graduate employability, universities are expected by government to provide some hard data, such as providing short or low term employment outcomes (Clarke, 2017). In the UK, a survey, which measures against Destination of Leavers in Higher education (DLHE) metric to identify graduates who are in employment six months after graduation, is used as a performance indicator of graduate employability and also as measure of the performance of the higher education (HECSU, 2016). In addition, Future Track (2013) survey in UK could provide a very comprehensive overview of graduate employment outcomes. The time-scale surveys are good for understanding the ways of how higher education experience and credentials have an impact on shaping graduates' employment outcomes (Tomlinson, 2017b). In Australia, a survey which was conducted annually between 1972 and 2015 examined graduates' information four months after their graduation (GCA, 2015). Critics argue that such approach measures largely at the aggregate level and aims to using large-scale quantitative data to indicate the performance of universities rather than the employment outcomes of graduates (Clarke, 2017). Other scholars also critique whether this employment destination and outcome approach can truly reflect the needs of various stakeholders and whether it can accurately reflect the graduate employability (Jackson and Chapman, 2012). In addition, based upon the evidence of Blenkinsopp and Scurry (2007) and Scurry and Blenkinsopp (2011), Clarke (2017) argues that the oversupply of graduates might result in that some graduates are forced to accept jobs which do not require graduate-level skills. In line with the previous evidence, such approach did not pay enough attention to the quality of jobs, especially individual's fulfilling of a job.

In terms of psychological approach, there are some measurements that concentrate on the individual-level analysis of the employability. This approach has been utilised to increase employee's employability in the context of organisations (Forrier and Sels, 2003). This is in line with the idea of individual agency that has gained weight in the research field (Tymon, 2013; Vanhercke *et al*., 2014), and it argues that individual is responsible for his or her employability (Clarke, 2017). Some scholars highlight the subjectivity through self-rated assessments from the psychology area (Rothwell and Arnold, 2007; Rothwell *et al*., 2008; Rothwell *et al*., 2009). The concept of self-perceived employability highlights the importance of subjectivity through individuals' perceptions in the psychological literature given that 'individuals act upon their perceptions rather than upon any objective reality' (Vanhercke *et al*., 2014, p. 594). In contrast, some researchers from other disciplines intend to include some objective measurements by utilising the socio-demographic factors such as salary, promotions to explore the mediating effects of employability with the link to career success (Ng and Feldman, 2010). This is because it raises an important question to think about the extent to which the micro-level is inherently subjective (Vanhercke *et al*., 2014).

There are three approaches measure individual's self-perceived employability that dominate in the broader employability literature. The first approach is the competence-based approach which developed by Van der Heijde and Van der Heijden (2006). The second one is the dispositional approach from Fugate and Kinicki (2008). Van der Heijde and Van der Heijden (2006) suggest to use a competence-based approach to understand the individual's employability, which is derived from an expansion of the resources-based perspective. This approach focuses on individual's perception of his or her abilities, capacities and skills that promote their chance in career success (Vanhercke *et al*., 2014). According to Van der Heijde and Van der Heijden (2006), the aspects of 'occupational expertise', 'anticipation and optimization', 'personal flexibility', 'corporate sense' and 'balance' are included in the competence-based conceptualisation of employability. In their approach, the focus is on employed workers who expect to maintain their job or to transition on the internal and external labour market. In contrast, the dispositional approach developed by Fugate and Kinicki (2008) focuses on employee's perceptions of their proactive attitudes which are associated with career and work in general. The dimensions are 'openness to changes at work', 'work and career resilience', 'work and career proactivity', 'career motivation', and 'work identity'. The third approach is from Rothwell *et al*. (2008). In their definition, self-perceived employability is student's 'perceived ability to attain sustainable employment appropriate to one's qualification level' (Rothwell *et al*., 2008, p.2). They distinguished the external dimensions 'state of the external labour market', 'my university' and 'my field of study' from the internal dimension 'self-belief'. This perspective is in line with the other researchers (Bernston and Marklund, 2007) who also utilised

an individual approach in understanding employability whilst taking the external labour market into account.

The above three approaches to employability are all inherently subjective that focused on individuals' perceptions and accounted for individual factors, structural factors and their interactions. Both competence-based and dispositional approach have the potential to address perceived employability across different career stages, but they mainly focus on the employed groups (Vanhercke *et al*., 2014). Given the focus of this study is to understand the interactive play between Chinese doctoral students' self-perceived employability and the labour market, Rothwell's *et al*. (2008) psychometric instrument has been applied to explore Chinese doctoral students' self-perceived employability. The further rationale of utilising this tool has been explained in the methodology chapter.

2.2.3 The influential factors

There are some factors in the individual's environment may determine how they perceive their employability (Alvarez *et al*., 2017). It is suggested that the differences across disciplines appears to be a significant factor that impacts upon the groups of doctoral students. A widely cited employability model from Yorke (2001, cited in Lees, 2002) placed a focus on graduates' skills development through their subject of study. Consistent with Yorke, Harvey's *et al*. (2002, cited in Lees, 2002) model also emphasised the specific programmes of study that impact upon one's reflection on their employability skills development. More specifically, their employability model indicated a triangulation of participation in skills development that involves higher education institutions, students and employers. It suggested that students not only needed to reflect and develop their employability to meet employers' requirement, but also needed to meet the expectations of the corresponding subject they studied. In his study, O'Leary (2017) found significant variations by subject discipline area when examined students' attitudes to whether employability-support should be available in undergraduate study. In particular, the attitude of sciences and humanity graduates differs from engineering and social science graduates. In addition, Moreau and Leathwood (2006) indicate that the patterns of employment are strongly gendered in some disciplines in their study. They selected the undergraduates from different disciplinary areas – Psychology, Business, Computing and Film Studies. Though their sampling primarily focus on undergraduate students, the results reflected the strongly gendered employment pattern in some specific subject, such as computer science. The data indicated that the graduates made up six out the seven work in graduate-level position. All but one of these were male students, and the female

student, despite she was in a graduate-level position, was working in non-computing field. Apart from this, the data also demonstrated that the ratio of male in a graduate-level position was much higher than the ratio of female (six out of the 15 in male and one out of the 17 in female). However, it was found that disciplinary study related to doctoral students in the literature is sparse.

Regards to gender, some scholars argue that males tend to perceive themselves as more employable than females (Berntson *et al*., 2008; De Cuyper *et al*., 2011). In their study, Berntson *et al*. (2008) discovered that men reported higher levels of employability as well as higher level of self-efficacy than women. Similarly, McQuaid and Lindsay (2005) suggest that males tended to have better options in the labour market, and thus they perceived they are more employable. According to Qenani *et al*. (2014, p.210), 'gender has a direct impact on issues of self-confidence and self-esteem that are crucial when dealing with graduate employability'. In addition, Schwabe (2011) carried out a study focused on doctoral students, and it was found that the participation of doctorate holders on the labour market differs significantly between men and women. Data on activity rate of doctorate holders reported that females' absence from the labour market to a large extent was influenced by child care, especially those with young children at home (Schwabe, 2011). Though those female PhDs' absence from the labour market does not mean that they are not employable, to some extent, it determines how they perceive their position in the labour market. In addition, little attention was paid to gender differences before they go into the labour market. Furthermore, individuals' backgrounds have been argued that may affect one's perceived employability. Hillage and Pollard (1998) believe that one's social backgrounds impact upon their willingness to make changes and adapt to possible working conditions. The study from Hirschi (2010) indicates that socio-demographic variables are closely related to the existing environmental opportunity structure in their sample, especially affect their perceptions of chance events. In addition, McQuaid and Lindsay (2005) highlight the effect of one's social background on their geographical mobility associated with employment.

2.3 Graduate capital

In order to obtain a comprehensive understanding in relation to the way in which Chinese doctoral students construct their employability and shape their potential employment outcomes in the nearly future, this study draws on the graduate capital theory proposed by Tomlinson (2017a), to explore how Chinese doctoral students approach to their wishes and aspirations. His conceptualisation consists of human capital, social capital, cultural capital, identity capital and psychological capital. The graduate capital approach differs from the dominant skills approaches

and provides an alternative understanding of graduates' employability. The capital is conceptualised as the key resources, which were acquired through graduates' lived experience. These resources consist of the formation of skills, knowledge, social relations, cultural praxis, identities and psycho-social dispositions, which are recognised as the key resources that can be utilised when graduates enter the job market.

2.3.1 Conceptualised capital as crucial resources

As noted by Tomlinson (2017b, p.17), 'if we are continue to see employability as being about individual's relations to the labour market and what they need to draw upon to succeed, as well as how universities may facilitate this, it might be better to utilise the concept of employability capitals rather than skills'. As can be seen from Figure 2.1, five dominant capitals – 'human capital', 'social capital', 'cultural capital', 'identity capital' and 'psychological capital' have been cited in his model to navigate the understanding of graduate employability (Tomlinson, 2017a). As noted by Côté (2005, p.224), capital refers to 'sources of profit, advantage and power, as well as net assets and resources'. The forms of graduate capital are defined by Tomlinson (2017a) as the key resources that could confer the benefits and the advantages onto graduates when they utilise to open up the graduate opportunity structure in the labour market. His graduate capital model tightly focused on the key resources that acquired through graduate's formal and informal experiences. In his perspective, the formation and application of the forms of graduate capital are described as a graduate's immediate relations to the labour market, which might shape their choices and capacity to act in the most advantageous way in making a transition towards the labour market. These capitals fitting into one of the five employability constructs and ultimately relating to the proposition that employability includes the human capital resources, social capital resources, cultural capital resources, identity capital resources and psychological capital resources. The following parts provide an overview of how different forms of graduate capital can explain the graduates' employability, and then latterly towards a firmer application to doctoral students' transition to the labour market.

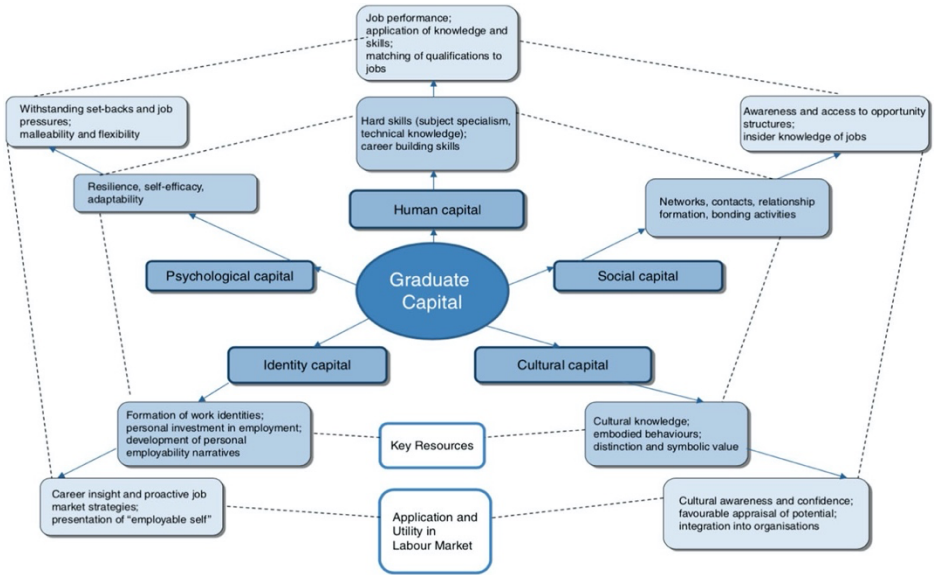


Figure 2.1 Graduate capital model (Tomlinson, 2017a)

2.3.2 Human capital resources

First of all, human capital is primarily stressed in Tomlinson's model. Its sources lie in the knowledge and skills which graduates acquired through their degree study, and it also contains the other career-related awareness and skills (Tomlinson, 2017a; 2017b). This definition recognises that the key components of human capital should reflect what and how graduates make connections between the acquisitions of knowledge and skills through their formal and informal experience and their future employment outcomes (Tomlinson, 2017a). The concept of human capital was introduced by economists to account for an individual's education attainment and specific technical skills that are productive in some economic context (Becker, 1964). This perspective is derived from human capital theory that concerns the investment of individuals on their human capital promotes greater productivity by improving individuals' knowledge and skills, in line with the objectives of governmental and educational approaches on employability. This is also in line with the scholars who have the interest in individuals' career success.

In this domain, human capital was defined by Hirschi (2012, p.374) as 'one's ability to meet the performance expectations for a given occupation', which includes the factors such as education, experience and training and cognitive ability within the broader category of work-related knowledge, skills, abilities and other characteristics (KSAOs). Hirschi (2012) adapts this definition from Fugate *et al*. (2004) and Inkson and Arthur (2001). Available information resources are indirectly included in this category because he believes these human capital resources can enhance the individual's knowledge and abilities (Hirschi, 2012). Large interest in this topic has resulted in

the empirical studies on this issue have largely focused on the relationship between human capital predicators and criterion measures of career success (Ng and Feldman, 2010). For example, Ng and Feldman (2010) utilised a meta-analytical structural equation modelling to test the mediating roles of two individuals' attributes – 'cognitive ability' and 'conscientiousness', in the relationship between human capital predicators and objective career success indicators. Their results supported the theoretical assumptions in terms of individuals' human capital investment such as in education and organizational tenure that boosts their cognitive ability and conscientiousness, which in turn influences their both in-role and extra-role performance (Ng and Feldman, 2010).

While many researchers believed that education is the strongest predicators within the human capital domain, the evidence suggested that the educational achievement and career progression in only modest (Hogan *et al*., 2013). For instance, Ng *et al*. (2005) found in their meta-analysed study, the indicators of educational level correlated modestly but positively with individuals subsequent financial success (r= .21). In addition, McArdle *et al*. (2007) conducted an empirical study to test Fugate's *et al*. (2004) employability model. They utilised education as the measure of human capital, however, it was found that education did not significantly contribute to the employability in their study. In this regard, it does not mean human capital is not important, but it can be understood by utilising the perspective of Hogan *et al*. (2013). Hogan *et al*. (2013) argue that if academic/educational qualifications are higher and more homogeneous in more competitive or highly skilled jobs, it will cause the modest effects of educational achievement on individuals' subsequent success in the labour market. In addition to this reason, Tomlinson (2017b) indicates the massification in some ways has closely related to the notion of 'credential inflation', which refers to 'as more people climb the qualifications ladders and acquire high-level credentials, the distinguishing value of these credentials declines' (Tomlinson, 2017b, p.16). In light of the Chinese labour market presented, as more individuals acquire the doctorate degree in an expansion of higher education context, 'additional work is required to demonstrate one's unique employment value' (Tomlinson, 2017b, p.7). Considering the similar situation in the UK, Tomlinson (2017a) suggests when universities provide a general education rather than a specific training, the occupationally-specific human capital deems critical to graduates, particularly for the students who have undertaken specialist programmes (e.g. medicine, nursing, law, accountancy). For example, individuals who study in the specialised programme may increase their likelihood of finding job in specific area rather than those from generic disciplines (e.g. humanities) (Harvey, 2001). In Tomlinson's perspective, 'if a graduate's employability is closely linked to the successful execution of a specific skill, then its acquisition and deployment are likely to have significance' (Tomlinson, 2017a, p.341). In light of the critic around considering doctoral training as a form of academic apprenticeship (Park, 2005), doctoral students may work in somewhat tightly-defined occupational

areas where there is substitution between their degree learning and labour market performance. As the evidence can be seen in the results of Golovushkina and Milligan's (2012) study, a large majority (12 out of 15) of their PhD interviewees from social science intended to pursue an academic career. In this respect the reason is because they are being involved in multiple highly specialised subject study, and academic and research activities in their doctoral learning experience and viewing the role of academic identity formation in this process (Golovushkina and Milligan, 2012). In addition, in the career literature, many scholars take occupational expertise as a prerequisite for positive career outcomes of workers. For instance, occupational expertise was taken as a significant human capital dimension in Van der Heijde and Van der Heijden's (2006) competence-based approach to employability. In a previous study, Johanna and Van der Heijden (2000) also used their original developed measure of occupational expertise to assess individuals' professional knowledge and skills. Furthermore, there were many categorisation of skills and attributes suggested in McQuaid and Lindsay's (2005) employability framework. The occupational skills were highlighted under the category of work knowledge base. Then consequently occupational expertise is considered as an appropriate measure in this study to assess doctoral students' human capital, particularly for exploring doctoral students' perceptions in terms of their formations of professional knowledge and skills and on the applicable of their professional knowledge in their desired occupational domain. On the other hand, working out certain differences between specialist disciplines or STEM-related disciplines and generic disciplines is another key focus of this study by utilising the occupational expertise to assess Chinese doctoral students' human capital.

Apart from a high level of knowledge and skills related to particular professional domain, it is also important to aware job-related matters as well as other aspects of individuals' skills (Van der Heijde and Van der Heijden, 2006). In light of the discussion around the mass higher education and consequently the impact upon the students in the labour market, the challenge for Chinese doctoral students is therefore to package their skills and attributes in a narrative of employability that is attractive and valued by employer (Li, 2013). In this regard, Tomlinson (2017a) argued the key component of graduates' employability is to exemplify the link between what they have acquired through their lived experience and how they demonstrate these knowledge and skills may transferable to their future performance. To enhance graduate's ability to realize the opportunities in the labour market and align to their desired occupational area is greatly influenced by his or her job market knowledge. Career building skill was identified by Bridgstock (2009) and highlighted its strength in helping graduates to identify and choose the best opportunities for themselves. Career building skills are based upon individual's knowledge of not just employment-specific requirements but also their wider labour market knowledge (Tomlinson, 2017a), which results in graduates with

more realistic expectations of the labour market and knowing how to effectively attract employers by using their skills and abilities. In addition, Tomlinson (2017a) argues that the possession of career-building skills also encompass other career-related skills, which enables graduates to have a well opportunity awareness and exploitation when they need to make transition to the labour market. Regarding this, both McQuaid and Lindsay (2005) and Hirschi *et al.* (2017) highlight the job market knowledge in their employability framework. In here, the job market knowledge can be regarded as an important dimension of graduate employability that demonstrates the degree of their possessed general knowledge about the job market and employment trends (Hirschi *et al.*, 2017). Despite the obvious theoretical link between job market knowledge and its salient influence on graduates' performance and outcome in the labour market, to date few empirical works have been conducted so far. In addition to occupational and labour market knowledge, many aspects of the skills and attributes that associated with individuals' human capital are all included in one category 'soft skills' (Hirschi *et al.*, 2017). The rationale of summarising a set of skills and competences into one category is because these soft skills are considered as the many of the main aspects of the narrow concepts of the graduate human capital that are relevant for a broad range of occupations. Furthermore, those skills and competencies can be seen as broadly and overlapping, thus, it is operationalised if summarised them into the entire one.

2.3.3 Social capital resources

As discussed above, human capital is crucial in enabling graduates to make connections between their formal education and employment outcomes, but it is insufficient on its own and needs to be mobilised through social relations and contacts (Tomlinson, 2017a; 2017b). As defined by Tomlinson (2017a), social capital refers to 'the sum of social relationships and networks that help mobilise graduates' existing human capital and bring them closer the labour market and its opportunity structures' (p.342). In addition, the relations and contacts are types of resources highlighted in Putnam's analysis of social capital, which refers to bridge the networks based upon norms and trust among members. Furthermore, Putnam's analysis of 'bonding tie' and 'bridging tie' is suggested by Tomlinson (2017a) as the key to the right of understanding to the resources that are made available to individuals or groups by virtue of networks. More specifically, bonding social capital constitutes a kind of sociological superglue that builds and maintains strong cohesion and loyalty for those members inward looking and tend to reinforce exclusive identities and homogenous groups. By contrast, bridging social capital advocates members to generate broader identities and reciprocity external to the group (Putnam, 2000). The importance of deeper understanding of use and transfer of inclusive and exclusive resources such as networks and

connections within the context of competitive graduate labour market has also been discussed with reference to employability. It is assumed that these networks and norms will enhance graduates' employability through 'a potentially better-informed insight and understanding of what opportunities exists, where they reside, who the main gate-keepers are and what they need to access employment' (Tomlinson, 2017a, p.342). For example, Tholen *et al.* (2013) found that the development of social capital enabled students to obtain more labour market opportunities. The influence on students' employability were illustrated in the way that they valued the networks, and actively developed the connections to access the potential career opportunities. Yet criticism is that these networks and connections, which are represented as resources, are embedded in the ties of elite credentials (Tholen *et al*., 2013).

There have been alternative attempts by sociologists to examine the strength of social relations and contacts. For example, Granovetter (1973) introduced the strong and weak ties to the cohesive network structure. Obtaining multiple uses from the same tie indicates the interaction between these two actors is strong, while a weak tie may occur for a single use only. Based upon Granovetter's work, some scholars cited the strong and weak ties play a significant role in facilitating information and influencing information flows (Lin, 1999; Lesser, 2000; Pilbeam and Denyer, 2009). Strong tie refers to the people who typically share a common body of knowledge and contacts (e.g. family members), however, they are often not useful in providing new sources of knowledge. In contrast, the strength of having weak ties (e.g. friends of friends) is useful for people to find out new sources of information (Lesser, 2000), especially in terms of accessing and extending bridges in the network to look for a job or better job (Lin, 1999). Whilst research on social capital also suggested the size and strength of the network in determining the potential of the information and influence provided (Fugate *et al*., 2004). In relation to graduates job searching, strong tie with immediate others (e.g. family members) makes possible rich sources of knowledge and information transferred, but having weak ties (e.g. employer contacts) is also good for building diverse and knowledge-enriching sources and maintaining trust towards areas of social or economic life that individual may have been less familiar (Tomlinson, 2017a).

According to Reay (2000, p.569), 'social capital is generated through social processes between the family and wider society and is made up of social networks'. The more specific analysis to social cohesion associated with 'the family' and 'social capital' was conducted by Edwards (2004), which poses a structure of networks and connections between graduates and their parents. Coleman (1994, p.302) has remarked that, 'social capital inheres in the structure of relations between persons and among persons', containing obligations, expectations, norms and sanctions. In Coleman's view, social capital can be utilised as a resource within 'the family', so that parents are interested in supporting their children to achieve a higher level of human capital (educational

achievement). Similarly, Côté (2005, p.225) argues that this intergenerational relationship is 'quid pro quo between parents and their progeny and the ability of the parental generation to transfer functional values and facilitative networks to the offspring generation'. Whilst research has focused upon the relationships between family relations and employment outcomes, interestingly empirical evidence is modest in support of this argument in China. In particular, the more abundant of social capital that students could obtain from their families, the greater information that they could receive from those relations and contacts, which consequently enabling them to find a good job (Yue, 2014a; 2014b; Li and Zhang, 2015). Apart from the extensive use of family relations, the relations and networks that are built externally to family are also significant for doctoral graduates to work towards opening up the opportunity structure in the labour market.

Variation in the degree of support obtained by PhD students may arise through the different academic disciplines they study. The earlier work by Becher and Trowler (2001) discovered the differences between the cultures of different academic disciplines. They argue that the students studying the natural sciences have cohesive cultures to work collaboratively in terms of resolving agreed problems by utilising a common shared approach. Whilst for those social sciences, there is no agreed methodological paradigm or consensus over important research questions, so students often adopt independent self-directed study. Though these are broad generalizations to discipline differences, the existing social network analysis to the doctoral community suggests that PhD students from different disciplines do make contacts with other students to a greater or lesser extent for the sake of fulfilling a wide variety of needs. For example, Pilbeam and Denyer (2009) used the techniques of social network analysis to explore the extent of the connections between doctoral students in a Management School, and the result demonstrates that a cohesive student groups characterised by virtue of networks with high level of norms and trust. The study suggests that students have considerable freedom to develop their network of contacts, but the programmatic structure may influence who is connected to whom. According to Pibeam *et al*. (2013), initial doctoral networks were discerned by students' cohort and facilitated by the first-year doctoral program structure. Students may develop alternative networks based upon their subsequent learning trajectories and the acquisition of necessary skills and formation. However, year of entry and degree type were identified as having significant effect on constraining the probable scope of connections between doctoral students (Pilbeam and Denyer, 2009). More specifically, students have the tendency to interact with others who are studying for the same degree or who entry at the same time for the sake of getting support in facilitating the communication of complex information which are associated with their particular research issue and to focus on tractable problems (Pilbeam and Denyer, 2009), whilst students composing those networks have social interactions that are supportive in different ways. Apart from peer students,

it was found that students may extend their relations beyond the formal confines of higher education. For example, the findings of Pilbeam's *et al*. (2013) follow-up study demonstrate that a senior PhD who is intending to remain in academic practice may extend later network to bridge experiences connecting those academic staff outside the host university. This supports the earlier discussion by Tomlinson (2017a), which indicates that identifying exclusive resources and gate-keepers are crucial in attain advantage in job searching.

In addition, research evidence demonstrated that supervisors are significant to doctoral students' process and potential employment outcomes (Ives and Rowley, 2005; Hill and Walsh, 2010; Platow, 2012). Much of the current literature concentrates on elaborating the role of a supervisor and the effect of supervisors to their doctoral students in some depth (Pearson and Brew, 2002; Pearson and Kayrooz, 2004; Lee, 2007). In order to effectively understand the salient facet of social capital formation associated with supervisor's relation, it is imperative to understand the form of meaningful interactions between doctoral students and their supervisors. As noted, supervisors can do much to a doctoral student career progression. For example, Platow (2012) argues that the appropriate supervisory support is considered as pivotal in influencing doctoral student's outcome, eventually determining employment opportunities. In addition, Hill and Walsh (2010) suggest that supervisors influence students on accessing to resources, opportunities and networks, which significantly affect students' career pathways. Ives and Rowley (2005) explored the allocation of supervisors to students and continuity of supervision in relation to students' progress and satisfaction with supervision. It was found that students who have supervisors with more experience or who have two active supervisors were more likely to access more information and make a good progress.

As argued by Tomlinson (2017a), 'the main issue at stake here for graduates' transition into employment is the ability and then exploit opportunities, particularly when significant others in their lives have (or not) played a bridging role in helping them learn about and access employment opportunities' (p.343). For those Chinese doctoral students, the credentials they used to establish their positional advantage in the labour market have inflated within the context of mass higher education. In such context, it has become increasingly imperative for those Chinese doctoral students who do not intend to work in the academic field to be able to develop bridging experiences and extent their weak ties and beyond the formal confines of higher education. Meanwhile, for those who intend to work in the research area has become increasingly imperative for them to build relations and network in that area, via conference, seminars or other events.

2.3.2 Cultural capital resources

This brings to the third concept included in the graduate capital model – cultural capital, which was developed by Bourdieu (1986) which are recognized as an interpretive tool to highlight the underlying rules and principles that are taken for granted within the field of individual's socio-cultural milieus and the educational context. The concept of cultural capital was defined by Tomlinson (2017a) as 'the formation of culturally-valued knowledge, disposition and behaviours that are aligned to the workplaces that graduates seek to enter' (p.344). In addition, in Burke's perspective (2015, p.11), 'cultural capital is understood to include personal tastes, knowledge and skills'. According to Lamont and Lareau (1988), they suggest that cultural capital can be understood as 'widely shared, high status cultural signals (attitudes, preferences, formal knowledge, behaviours, goods and credentials) used for social and cultural exclusion, the former referring to exclusion from jobs and the latter to exclusion from high status groups' (p.156). In Lamont and Lareau's (1988) perspective, to make these signals considered as a form of cultural capital, they need to be defined as status markers by a large number of people. In light of this perspective, it is clear that exclusion is a critical issue associated with cultural capital. Bourdieu did not deny the possibilities of the individuals from disadvantaged background acquiring the cultural signals through education (Lamont and Lareau, 1988). However, in the context of mass higher education, when educational capital is no longer the deciding factor, one aspects of important knowledge associated with cultural capital that is highlighted in Tomlinson's (2017a) model is an appreciation of the understanding of the ability of how the game works between higher education and the labour market.

Regarding this, an increasing amount of research has focused on students' and graduates' understanding of the labour market (Brown and Scase, 1994; Tomlinson, 2007; 2008; Bathmaker *et al*., 2013). In light of their studies, the concept of cultural capital has been widely accepted to explain how middle classes capitalise their cultural assets via educational system in the UK context. To take one example in detail, Brown and Scase (1994) examined to what extent students perceive their transition from higher education to the labour market as a meritocratic process that are distinguished by different types of universities that they attended. In their study, different types of universities have been taken as proxy measure of social class. The finding indicates that the individuals from middle-class displayed a greater understanding of the labour market, especially, they were aware of the devaluing of a degree and intended to take strategies to deal with this issue. Although the acquisition of cultural capital through education can enable disadvantaged background students to have an avenue for social inclusion (Brown and Scase, 1994), the mirroring of findings demonstrate that working class respondents did not understand the job market and were intending to enter positions where within the fast declining bureaucratic sector (Brown and

Scase, 1994). Tomlinson (2008) compared his study to that of Brown and Scase (1994), and he argues that students in his own study demonstrated an increased understanding to the devaluing of their degrees. Apart from seeing 'degree is not enough', the students also recognised the importance of other credentials in creating their employable identity or called 'graduateness' (Tomlinson, 2008). Based upon Holmes' work on graduate identity, Tomlinson (2008) argues that students are intending to use their individualised approach to enhance graduate employability. In addition, Tomlinson (2008) suggests that students are increasingly creating their own identities in a reflexive way, which adopted the reflexive modernity perspective from Beck's. Nevertheless, Burke (2015) questioned the sample in that of Tomlinson's (2008) study was completely comprised of middle-class students. In addition, he argues that the reflexive individuals in Beck's perspective are middle-class. As a result, he criticizes that the findings of Tomlinson could only demonstrate that middle-class respondents showed a greater understanding like the cohort of middle-class students in that of Brown and Scase (1994).

Furthermore, as can be seen the further example in a more recently research from Bathmaker *et al*. (2013), the findings of their study demonstrate that how middle-class students 'maintain their advantages through acquisition, maintenance, development and mobilization of cultural capital, social and economic resources' (Bathmaker *et al*., 2013, p. 730). Bathmaker *et al*. (2013) found the notion of 'the feel for the game' which developed by Bourdieu, referring to students think about their advantages through the possession and mobilization of capitals which is helpful for students to put themselves in the best position to win the game. In light of their findings, both students from middle-class and working-class background in their study illustrated an awareness of 'the game' of obtaining a graduate-level job, including how the rules of the game had changed (Bathmaker *et al*., 2013). According to Rothwell *et al*. (2008, p.2), 'there is strong evidence that large-scale recruiters of graduates targeted a limited range of universities'. In particular, employers would pay a greater attention to the types of university attended and the class of degree due to the increase in the number of graduates (Coffield, 1999). Additionally, a more valuable forms of knowledge which is associated with cultural capital is how to play the game, in terms of 'how to get the best return, which disciplines to avoid and in which disciplines to invest' (Burke, 2015, p.56). Both two types of perspectives had found in students' answers. Although the findings show students were correct in demonstrating increased market sensibilities, Bathmaker *et al*. (2013) suggest that that was not enough. In their perspective, the understanding of how the game works was not simply to make strategic choices about university and course, but also related to mobilise additional resources as well (Bathmaker *et al*., 2013). Regarding to mobilization of additional resources, there are significant disparities between middle-class and working-class students being identified in Bathmaker's *et al.*(2013) study, in terms of access to ECAs (Extra-curricular activities) and other

forms of capital. According to Burke (2015, p.53), 'ECAs were a key resource that students could use in order to create their own identity. It was a way of regaining lost capital through degree devaluation; in a sense, they were advocating a form of neo-human capital theory where individuals still invest in their education for later rewards, but the capitals invested in during education have been extended'. Bathmaker *et al*. (2013) found middle-class students mobilised the additional resources in both 'active' and 'internalised' ways to position themselves advantageously in the labour market by joining ECAs in order to cultivate their CV, while it was found that working-class students met economic and cultural barriers to take part into ECAs and other capital resources. Some students explained that they did not engage in structured ECAs due to under time pressure from jobs, while others stated they would not fit into these activities due to their working-class background (Bathmaker *et al*., 2013).

This body of research revealed that middle-class respondents demonstrated their greater understanding of and ability to 'play the game'. Of particular relevance to their treatment of their employability is the notion of distinction Bourdieu developed, between 'institutionalised' cultural capital, in the form of educational credentials and other add-value knowledge, tastes and achievements, and its 'embodied' form as developed by Bourdieu as well, which refers to 'the manifestation of individual's desired embodied behaviours and dispositions within a given field' (Tomlinson, 2017a, p.344). The former appears in Tomlinson's account of graduate employability as finding out value-added resources that can potentially enrich an individual's social standing. For instance, Lindberg (2013) found prizes won, conferences attended, as well as other wider achievements that confer value-added onto graduate medics in the elite occupational contexts and help them stand apart. For doctoral students, even they already stand on the top of higher education hierarchy, it is impossible to construe the institutionalised state of cultural capital as taking the forms of educational credentials and qualifications. In light of A Report on the Doctoral Quality presented, the possession of the relevant academic achievements such as publications, conferences attended, overseas experiences are the key to help Chinese doctoral students in the recruitment process. Yet Li (2013) stated the expansion of Chinese students international enrolment has resulted in the devalued of the institutionalised cultural capital of foreign academic credentials. However, this approach still works for doctoral students as can be seen in the requirements of higher education institutions that are in favour of recruiting the doctoral students who have at least one-year overseas study experience. Furthermore, in light of discussion above, the middle-class graduates entered the labour market based not on their qualifications but rather on their 'real-social-qualification' (Burke, 2015), which is line with 'guanxi' in China. In Li's (2013) perspective, 'guanxi' refers to the particular social practices and values 'that must be accommodated in any successful account of transitions amongst Chinese students or in China'

(p.479). Another key issue is that a new structure of social stratification is still emerging in China rather than like the discussion in the UK context that has an existing form being reproduced (Li, 2013). Therefore, this study is more likely to applying cultural capital to see 'emergence' rather than 'reproduction'. In particular, there is a gap in the literature of the Chinese context related to how doctoral students who intend to seek non-academic employment utilise their cultural capital in enabling themselves to stand apart from other competing graduates. The latter appears in Tomlinson's model account of embodied capital that is 'the manifestation of individuals' desired embodied behaviours and disposition within a given field' (p.344). In Tomlinson's perspective, it can be understood as 'the deployment of embodied forms of capital is largely referenced against the values and social mores of any specific sector and organization, and the types of filed dynamics by which it operates' (Tomlinson, 2017a, p.344). For doctoral students in different disciplines, they have their desired embodied behaviours and dispositions to their desired employment domain. As can be seen in the study of Golovushkina and Milligan (2012), unlike doctoral students who need to work in the laboratory as a team, social science doctoral students often work on individual projects and it might prevent them from explicitly develop and present a form of embodied capital. In addition, embodied cultural capital is situated in a specific field and is also concerned with negotiating a position within that particular context (Kalfa and Taksa, 2015). In other words, it can be understood as 'embodied knowledge consists of contextual practices, and is more of a social acquisition, as how individuals interact in and interact their environment creates this non-explicit type of knowledge' (Collins, cited in Kim, 2010, p.583).

Therefore, the focus of cultural capital is placed on exploring how Chinese doctoral students reflect their own practices and manages their employability to 'play the game' between the shifting from higher education to labour market. The challenge of this mode of capital is that it is differentiated by different students' cultural proxies, which may influence their perceptions on their employability and the possibilities in the labour market, and which may be reinforced through the mass higher education. Considering the issue in relation to the students who come from different socio-economic backgrounds may have different understanding of labour market rules, Tomlinson (2017a) suggests that the key issue here is to 'processes of cultural unfreezing and expanding the realms of the possible, including the development of personal confidence and horizon scanning' (p.345). In his perspective, the possession of stronger cultural knowledge and awareness enables graduates to embody the forms of behaviours and attitudes towards their targeted work or organization (Tomlinson, 2017a).

2.3.5 Identity capital resources

This part moves to another key concept in Tomlinson's graduate capital model – identity capital. This concept was defined by Tomlinson (2017a) as 'the level of personal investment a graduate makes towards the development of their future career and employability' (p.346). This definition indicates that identity represents the central agency mechanism associated with an individual's capacity to draw on experiences and articulate a personal narrative to develop emerging identity, so that individuals can make efforts towards to the emergent identities that aligned to their desired employment domain which makes their transition to the labour market in the early stage favourably (Tomlinson, 2017a). In other definition, identity capital was considered as 'how the individuals invests in a certain identity (or identities) and engages in a series of exchanges with others in a variety of contexts (only some of which are economic)' (Côté, 2005, p.225). As can be seen the significant role of identity formation that provides the advantages 'if the personal investment people make toward future work propel actively towards the labour market' (Tomlinson, 2017a, p.346), which has been acknowledged in broader career management literature.

In particular, the literature review positioned that career identity is significant to one's employability development (Brown and Hesketh, 2004; Fugate *et al*., 2004; Holmes, 2001; 2015; Nazar and Van der Heijden, 2012). A widely accepted employability model from Fugate *et al*. (2004) indicated that 'a career identity provides a more or less coherent representation of often diverse and diffuse career experiences and aspirations' (p.19). In the context of career, where individuals perceive the possible selves consists of 'goals, hopes, and fears; personality traits; values, beliefs, and norms; interaction styles; time horizons; and so on' (Fugate *et al*., 2004, p.20). Career identity was recognised as the driving force of an individual's motivation to fulfil their employability potentials (Fugate *et al*., 2004). Additionally, career identity has been identified to demonstrate the relationship with the perceptions of employability among young adults in Australia (Praskova *et al*., 2015) and Chilean managers (Nazar and Van der Heijden, 2012). According to Praskova *et al*. (2015), the young adults with a clearer career identity have been found with a more positive perception of employability, which in turn has resulted in less career stress. In their study, Nazar and Van der Heijden (2012) found career identity is dynamic and evolving. In addition, they also found if individuals whose identity is closely related to a particular group will result in relying on the opportunities that provided by this group to develop their careers (Nazar and Van der Heijden, 2012). Nazar and Van der Heijden (2012) introduce the notion of 'career identity complexity' to explain this, and the notion consists of 'a variety of self-representation and multiple career referents that selects and gives meaning to the diversity of career experiences, and which articulates past, present and future notions of the self' (p.152). Moreover, Eby *et al*. (2003) suggest that career identity (knowing why) has been identified to associate with one's career success

(subjective success, internal and external marketability), which revealed that if an individual with a strong identity will exert their efforts to develop the required skills to increase their value in organisation. Furthermore, it was found that career identity can mediate between the core personal attributes, such as the exploration and attitudes, and life and satisfaction, however, Hirschi *et al.* (2011) did not test the link between career identity and one's perceived employability. This body of discussion potentially presents the significant role of the formation of identity. Therefore, Jackson (2016) argues that the graduates' 'pre-professional identity' need to be developed through the higher education 'landscape of practice', which helps them to develop self-awareness and goals which may also assist them toward to the employment domain they seek to enter. In addition, Holmes (2013; 2015) argues that the importance of the emergent identities that graduates have developed also indicated the extent to which graduates can build their identities, which demonstrates a strong influence on their progression in making the transition to the labour market in the early stage.

Fugate *et al*. (2004) argued that 'career identities are often articulated in the form of narratives' (p.20). The role of narrative approach in studying identity formation has received considerable attention (McAdams, 1995; Nazar and Van der Heijden, 2012). In Nazar and Van der Heijden's (2012) perspective, 'narrating one's life is a way of constructing one's identity' (p.144). McAdams (1995) suggests that the use of a narrative approach enables individuals to make sense who they are when tell their own stories by integrating roles, values and skills and organize the past and the future into a pattern. As Fugate *et al*. (2004) argued, identity narratives are strongly derived by one's possible themselves, which leads individuals to articulate their own values and motivations and identifying the role they would like to target the valued audiences, such as prospective employers. In particular, narrating one's identity in a form of story is not only concerned with the facts but also an individual's perceptions of their social construction of the reality. Therefore, the significance of self-presentation of an emerging employability narrative was emphasised by Tomlinson (2017a), as the encapsulation of one's self through their autobiographical narratives in the CV consists of what graduates understand the overarching of their identity and their accounts of relative employment value, and also related to which is attractive to prospective employers.

Due to the market saturation and other inevitable challenges in the future career, identity capital is critical to doctoral students, particularly for them to identify what makes themselves unique and how this can be improved towards the employment domain they seek to enter. As can be seen the example discussed in the section of human capital resources. The initial career identity has been found in the social science doctoral students' perception of their employability, in terms of the skills, knowledge, attitudes they are expecting to develop and their awareness of the labour market requirements, which both link to their future career path (Golovushkina and Milligan, 2012). In

other words, it can be understood as 'the self-perception and self-concepts graduates form around future work can therefore provide a frame through which they may be able to channel their experiences and profiles' (Tomlinson, 2017a, p.346). A key assumption of the development of career identity that highlighted in the most career theories is the active career preparation (Praskova *et al*., 2015). It was believed that the greater career preparation enables individuals to increase self-awareness and knowledge about educational and career choices (Skorikov, 2007).

One related is the career exploration, which is 'aimed at eliciting information about oneself or one's environment in order to make a decision about an important life choice' (Grotevant, 1987, p.204). In addition, other researchers defined career exploration in a similar way. Exploration was defined as involving individuals to gather career-related information about themselves and occupational environments (Praskova *et al*., 2015), it enables doctoral students to construct and reconstruct themselves, clarity their career path, and form a coherent career goals and manage their career identity. Furthermore, this assumption has received considerable empirical support (Stumpf and Colarelli, 1983; Praskova *et al*., 2015; Hirschi *et al.*, 2017). As suggested by Hirschi *et al.* (2017), the access to one's career exploration which enables 'the extent to which information about career options is collected' (p.6). Stumpf and Colarelli (1983) developed two aspects of career exploration scale, which included the self-exploration and environment exploration. The reason for examining the environment exploration is because the environment is where the main career information come from, and the exploration of environment would be expected to the amount of information obtained (Stumpf and Colarelli, 1983). Additionally, it has been suggested that 'career exploration will increase self-knowledge, which will cause changes in the way one perceives oneself and result in a more accurate self-concept' (Jordaan, cited in Stumpf and Colarelli, 1983, p.218). On the other hand, career clarity is another applicable concept to access identity capital. According to Hirschi *et al.* (2017, p.6), career clarity refers to 'the clarity and self-determination of career goals', which has been received considerable theoretical and empirical work support (Ng *et al*., 2005; Ng and Feldman, 2014; Fugate *et al.*, 2004; Praskova *et al*., 2015). It has been found that individuals with a clear career identity is related to salary (Ng *et al.*, 2005; Ng and Feldman, 2014) and satisfaction about their career (Ng *et al.*, 2005). In addition, Fugate *et al*., (2004) argues that 'career identity provides a strong cognitive and affective foundation for employability' (p.20), therefore the career clarity enables doctoral students to identify the possibilities of themselves and the gap between their career goals.

2.3.6 Psychological capital resources

Transitions for doctoral students from education to the labour market is a significant change. Discussion around the human, social, cultural and identity capital has indicated that there are certain resources that can accumulate and deploy one's employability. In Tomlinson's model, psychological capital refers to 'a potential significant form of capital as it is based on the psycho-social resources which enables graduates to adapt and respond proactively to inevitable career challenges' (2017a, p.348).

Fugate and his colleague develop and validate a dispositional measure of employability (DME), which represents a new conceptualisation of employability and attempts to explain the relation between the individual and the environment. The dispositional employability was defined by researchers as 'a constellation of individual differences that predispose individuals to (pro)active adaptability specific to work and careers' (Fugate and Kinicki, 2008, p.503). The emphasis of their approach is putting on career adaptability which refers to individuals have proactively adaptable characteristics to negotiate with the changes and transitions in organization. As Fugate and Kinicki (2008) noted, this dispositional approach not only implies the benefits of proactive and adaptable individual characteristics associated with employability, but also indicates its influence on one's perception of control and coping with the changes in workplace. Except using credential, social, value-add resource and self-identity to accommodate change, it also involves graduate dispositions in terms of having a positive characteristic that could facilitate the positive behaviours in their transition to the labour market.

Alternative approach in relation to one's dispositions to change has focused on the concept of psychological capital developed by Luthans *et al*. (2007). Psychological capital is particularly relevant in an organisational context, due to a plethora of studies support the perspective that psychological capital is a distinct positive concept, which enables to warrant employee engagement in the workplace (Sweetman and Luthans, 2010; Thompson *et al*., 2015). Accordingly, 'psychological capital is an individual's positive psychological state of development and is characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success' (Luthan *et al*., 2007). In addition, the concept of psychological capital is viewed as a higher order than human and social capital. As suggested by Luthan *et al*. (2006, p.21), both human and social capital contribute to develop psychological capital but that psychological capital is considered to have a 'greater impact than social or human capital by themselves and that

the whole is greater than the sum of its parts'. In this respect, Thompson *et al*. (2015) discussed the influence of psychological capital on other forms of capital in the context of work engagement. In their perspective, while having lower psychological capital will not directly influence on employees' human capital, it can deny the employee the confidence needed to be successful on the job behaviours; as for those with lower psychological capital (lower self-efficacy, lower optimism), they are unable to look closely at their social capital and to build stronger trust with other colleagues in the workplace.

Through this understanding of the interactions between psychological capital and other forms, psychological capital may provide a lens for doctoral students to see the other forms of capital as well as discern or enhance their self-perceptions of the resources underpinning that capital depending on its strength. In other words, the value of psychological capital is to become connected with the greater positive psychological well-being provided and alongside other forms of capital in facilitating the transition process. A master thesis indicated that psychological capital is a strong predictor of undergraduate student's employability by proving that psychological capital can explain 62.0% of the variation of employability (Lv, 2012). The employability here consists of five dimensions – 'self-development ability', 'interpersonal communication ability', 'self-confidence', 'practice ability' and 'adaptation ability'. It was found that three dimensions of psychological capital (self-efficacy, hope, and optimism) have liner regression relationship with employability. The results indicated that self-efficacy was the first entered into the regression equation model which can explain 56.0% of the variation of employability. In general, self-efficacy is viewed as a related but conceptually distinct construct to employability (Fugate *et al*., 2004; Van der Heijde and Van der Heijden, 2006). As explained by Berntson *et al*. (2008), the relationship between self-efficacy and employability has only been tested by utilising self-report employability tool where it has been suggested that employability lead to self-efficacy because of the accumulation of experiencing positive events. Whilst the finding showed the strong correlation between psychological capital and graduate employability, yet it is not clear whether psychological capital leads graduates to have more employability, or it simply influences their perceived employability. Furthermore, the employability scale proposed here was considered as the internal employability on account of Lv's (2012) study targeted the sample who was not in employment. Empirical research on psychological capital echoes findings concerning certain developable personal resources that constructed by individuals, which associates with 'an individual's capacity to adapt to challenge personal circumstance and establish a relatively high locus of self-control' (Tomlinson, 2017a, p.12). The importance of 'adaptability' and 'resilience' have been proposed by Tomlinson (2017a) in his graduate capital model in relation to psychological capital as those two dimensions are primarily connecting to individual's positive agentic resources when they experience job search and job

adversity. The concept of 'career adaptability' developed by Savikas and Porfeli (2012) have received highly attention in the literature of applied research into careers. As discussed previous, adaptability is mainly concerning individuals' proactive and positive capacities to respond and adapt to change across situation. Although resilience has not been afforded attention in empirically test, it has been suggested as a predictor of job search behaviours in the unemployment period in theoretical. In Fugate and Kinicki's (2008) study to dispositional employability, career resilience reflects individuals' perceptions in terms of they have control over the destiny of their career. In Tomlinson's (2017a) view, resilience has been suggested as a positive agentic resource that graduates have to withstand pressures and set-backs in their initial employment stage.

Recent study from Chen and Lim (2012) suggest that the effect of psychological capital on job search is mediated through displaced employees' level of perceived employability. Chen and Lim's (2012) study indicated that positive psychological state benefits those displaced employees' perceived employability in terms of being confidence about their skills and abilities to perform in their new jobs, hold optimism views about their reemployment chances, able to find pathways to attain their reemployment goals, and are resilient to setbacks. As a result, how displaced employees perceive themselves in turn can lead to the effects on the type of coping goals they may possess and the type of coping strategies they may adopt. Problem-focused coping strategy was highlighted in this study. Because it was the self-initiate attempts by displaced employees to seek employment-related assistance such as learning from more experienced job seekers that proactively eliminates the source of their current distress. As noted, this accords with Ngoma and Ntale (2016) who suggested that emotionally stable people are easy to relate with and in most cases find themselves in many social relationships. This could also explain why Thompson *et al*. (2012) assert that richer psychological capital is beneficial for building up social network in a workplace. What is more, the finding also corresponds with Van der Heijde and Van der Heijden's (2006) perspective that higher overall perceived employability positively benefits individuals' job search behaviours and is better enable them to adapt to job movements. Therefore, the displaced employees who perceived themselves highly employable are having a positive state of mind and have higher potential to learn from others and focus their efforts towards the career goals in the unemployed.

2.3.7 The interactive and mutual influence of graduate capital

The brief review above discussed the content of each capital and related construct of each capital resource domain, which are likely to exercise some significant impact on Chinese doctoral students'

employability and the application of forms of graduate capital that shape their early form of negotiation with the labour market.

The graduate capital model distinguished the five capitals that can 'inform a graduate's immediate relations to the job market and shape how they and others perceive their potential and scope' (Tomlinson, 2017a, p.350). Briefly, human capital refers to knowledge, skills, abilities and other characteristics that are important to meet requirement for graduate-level employment in both specific and general domain. Social capital refers to the sum of social relationships and networks that helps graduates mobilising their human capital and bring them closer to opportunity. Cultural capital can be understood as graduates distinguishing themselves from other graduates and gain a positional advantage in the labour market competitions. In addition, the concept of cultural capital has its embodied form as developed in Bourdieu's work, which refers to graduates' desired embodied behaviours and dispositions within a given field (Li, 2013; Tomlinson, 2017a). Identity capital contains graduates' awareness of themselves related to their future career and also includes the subjective meanings regarding to the work role. Psychological capital includes the different positive psychological resources that enables graduates to adapt and respond to inevitable career challenges. In sum, each capital has its formation and application regarding to expand 'the parameters of graduates' choices and capacity to act in the labour market through an advantageous ways' (Tomlinson, 2017a).

While each capital is unique, they do not work independently from each other. According to the conversation of resources theory (Hobfoll, 1989), resources do not independent from each other but instead if a person has more resources in one area will possess more resources in other areas. As argued by Clarke (2017), if a graduate has the higher order of thinking skills that accumulated through human capital resources, they will in turn form the foundations of a graduate identity. In line with the career literature indicated, if an employee with more resources in social support will possess more resources to form his or her career identity (Hobfoll, 1989). In this vein, Tomlinson (2017a) provides an illustration regarding graduate context by given different forms of capital graduates feed off will enrich their other forms of capitals. In his perspective, despite human capital is clearly a foundation for graduates' labour market outcomes, but it is insufficient and needs to be complemented by other forms of capital. Regarding this, Tomlinson (2017a) pointed out how graduates' social capital mobilised their human capital in the labour market by given that graduates have to make significant networks which could help them to facilitate access to jobs and enable their higher education qualification and skills to be recognised and potentially utilised. Likewise, the existence of social capital resources has been found to promote the development of human capital resources in the organisational context (Nahapiet and Ghoshal, 1998). Those examples indicated the resources within each capital domain reinforce each other in the way that

accumulation of one capital resource facilitates the accumulation of another forms. In addition, some empirical studies in the career literature have indicated the positive relationship of components within human, social, career identity and psychological resources (Hirschi *et al*., 2011). Furthermore, in their study Ngoma and Ntale (2016) argue that it is the necessary for higher education stakeholders to notice the value of social capital, psychological capital and identity capital as they exert a mutual influence on each other in training of students' employability. In light of Hobfoll's (2002) discussion around the topic of resources, graduate capitals developed by Tomlinson (2017a) can be considered as multiple-component resources fits into an overarching model, and each domain includes the several key components are proposed to work in tandem in enhancing graduates' employability through its capital formation, and also in promoting potential positive employment outcomes through its capital application.

2.6 Summary

After reviewing the considerable number of research articles within this field, it is clear that research on graduate employability is well-established in the UK and Australia, while it is very sparse in China. In addition, little attention was paid to doctoral students. As argued the significance of the contribution that doctoral students made to society and economics (OECD, 2010; Group of Eight, 2013), this study was conducted in the hope of contributing to the research on this topic in China and also in hope of using Tomlinson's (2017) graduate capital approach to fully account for the complexity of social construction meaning of employability in order to understand Chinese doctoral students' self-perceptions associated with how they approach to their wishes and aspirations

Chapter 3 Methodology

3.1 Introduction

This chapter aimed to identify the methodological issues and discuss the methods utilised in this study. It is believed that the more specifically the identification of regularities in research process enabled the researcher to 'understand the presence, type, extent and causes of problems and the way one could control them' (Benini, cited in Sarantakos, 2005, p.11). In order to establish a meaningful research study, this study has drew on constructivism to act as a philosophy guide, and has provided a reasoned rationale to demonstrate why utilised a mixed method approach and how data collection and analysis have been conducted ethically, systematically and with scientific rigour.

3.2 Research paradigm

Hammersley (2012, p.2) has defined paradigm as 'a set of philosophical assumptions about phenomena to be studied, about how they can be understood, and even about the proper purpose and product of research'. Creswell (2014) suggested to use the term of 'worldview' to explain the research paradigm as its meaning comprised 'a basic set of beliefs that guide action' (Guba, cited in Creswell, 2014, p.6). He identified four worldviews for researchers to act as a guide to conduct their own research project, namely post-positivism, constructivism, transformative and pragmatism (Creswell, 2014). Each worldview requires researchers to think about the particular questions that associated with the underlying ontological and epistemological assumptions and how these assumptions related to their chosen methodology and methods (Scotland, 2012). This is because the selection of research paradigm would determine researcher's intentions, motivations and expectations to carry out a research project (Mackenzie and Knipe, 2006). Given the constructivism epistemology nature of the investigation of this study, how such philosophy assumptions of reality and knowledge have informed and guided researcher to her chosen methodology and methods have been demonstrated in the following considerations.

Firstly, ontology has been defined by Crotty (1998, p.10) as 'the study of being'. Ontological assumption also refers to 'concern the very nature or essence of the social phenomena being investigated' (Cohen et al., 2007, p.7). Thus, an ontological position can be understood as the existence of reality of what we are looking at in our own study. Having reviewed the literature pertinent to employability in Chapter 2, it is clear shown that employability is not solely an

employment outcome but it can be seen as an active social process, which cuts across students themselves, higher education, the labour market and the wider structural of the political, social and culture context. It is believed that individual's employability is constructed not discovered, so the reality of this study is based upon a *becoming* ontology (Gray, 2004). This means the way of one's development or management of employability is on the basis of the understanding of their self-beliefs and their perceptions towards the external labour market, so their perceptions of self-perceived employability might change due to the interactions with the wider sets of structural context. In addition, it is argued that the nature of employability is based upon multiple and socially constructed realities because Chinese doctoral students may construct and manage their employability towards approaching the labour market in different ways even they are in the same cultural context. In this vein, generalisability is less important than understanding the real workings behind 'reality' (Gary, 2004, p.31). This is because the extent to which Chinese doctoral students perceive on themselves is of critical importance to develop and maintain their favourable perspectives of the self in these social interactions (Qenani *et al*., 2014). The ultimate goal of this study was to understand these multiple social constructions of meaning and knowledge that associated with the way Chinese doctoral students approach to the desires and aspirations.

The stance of ontology discussed about what is reality, the epistemology leads to the other consideration which in relation to the nature and the forms of knowledge (*Cohen et al.*, 2007), as well as how these forms of knowledge can be created, acquired and communicated (Scotland, 2012). According to Tuli (2011), there are two broad and contrasting perspective that associated with studying the nature of reality. The first is positivism, which advocates the reality exists independently of the researcher and needing to be discovered using objective way (Scotland, 2012). The positivist research concerns about objectivism as the nature of reality for them is to discover 'empirical facts exist apart from personal ideas or thoughts' (Tuli, 2011, p.100). Underpinning by positivism theoretical perspective, a basic epistemological assumption is to develop the most objective methods possible to get the reliable knowledge which could be explained in quantitative terms such as how variables interact, shape events and cause outcomes (Tuli, 2011). In contrast to the stance of positivism, constructivism rejects the idea of seeing reality is being out there, but views 'reality and meaning making as socially constructed and it holds that people make their own sense of social realities' (Tuli, 2011, p.101). As such, constructivism research emphasises that humans should be the main data collection instrument (Lincoln and Guba, 1985), which means the relation between knower and would-be known is interlocked in an interactive process between researcher and participants as each influences the other (Mertens, 2005). Consequently, constructivist research primarily take a more personal and interactive mode to collect data, such as qualitative approach. Based upon the identification of underlying characteristics of each research

paradigm, it is shown that the positivism is less likely to investigate this ongoing social construction aspect of employability as such objectivism assumption is derived from on the basis of simple possessing objective methods and might fail to look at the meanings that individuals generate as they socially interact (Neuman, cited in Tuli, 2011, p.100). While constructivism pays more attention to explore and understand this social construction on the basis of interpretation data with the help of participants who provided the data in the study as it shrouds 'construction of knowledge as an interactional and rhetorical process and reifies and externalizes the mental world which itself is constructed through discourse' (Martin and Sugarman, cited in Young and Collin, 2004, p.376). Although constructivism is less likely in generalisation, obtaining thick descriptions through the collection of qualitative data enabled this study to extend the understanding of 'the person into the social environment' and 'how personal acts of meaning-making give rise to social consequences' (Young and Collin, 2004, p.380). As such, it helped to address the research questions in relation to the understanding of the dynamic and ongoing relationship between Chinese doctoral students as individuals and the labour market.

Given the epistemological and ontology stance adopting the perspective of constructivism, it is imperative to consider how these 'multiple constructed realities can be studied holistically' (Lincoln and Guba, 1985, p.37). Whilst employability will not guarantee a positive employment outcome, but it includes a doctoral student's agency and identity to reflect, think and respond to the wider environment. Except to explore how these Chinese doctoral students aware of their own employability and the scope of the labour market, it is also imperative to understand what meaning that Chinese doctoral students give to the intentions and actions of developing certain form of capital; and how they would be mobilise these possessed forms of capital in preparing the transition towards the labour market. What is more, as each Chinese doctoral student may have their point of view towards seeing the value of each form of capital and managing employability and career transition differently, which led to this research has placed the focus on understanding employability meaning relatively and contextually.

3.3 Research strategy and methods

The transition from higher education to the labour market is a significant change for Chinese doctoral students as it would embrace to use the components of time, habitual, identity changes, uncertainties and views passed from one stage to another. In such changing context, self-perceived employability becomes a critical aspect of individual personal development and adjustment as it associated with how they perceive their own value and position in competing for future jobs, and

how they adjust and negotiate with the external labour market, and as well as how they would adapt and cope with the potential transition challenges.

Given the constructivism nature of the investigation of this study, a mixed method approach has been taken in the data collection. The use of surveys and qualitative interviews enabled methodological triangulation to be used in this study. The use of mixed method approach not only assisted in data triangulation, but also helped to balance out any of the potential weakness in each data collection method (Gary, 2004, p.33). Arguably, there are some issues related to the use of quantitative data in constructivist research. Seeking to corroborate one source and method with another through some form of triangulation methods has been considered as philosophically problematic, but critics of this technique do not dispute its validity for augmenting findings (Mason, 2002; Silverman, 2000; Lincoln and Guba, 1985; Romm, 2013). As such, the use of quantitative data within constructivist research was compatible in Lincoln and Guba's (1985) research as they believed this qualitatively-driven usages of mixed method provided the researcher to acknowledge the epistemological underpinnings that the quantitative data used.

As previously shown in Chapter 2 that how one feel and make decisions closely based on the level of self-perceptions that they hold about their employability than what they are actually capable of accomplishing (Qenani *et al*., 2014). An understanding of the relationship between what Chinese doctoral students think and what they actual do was worth exploring in this context because it contributed to the better understanding of the contextualised meaning, and moreover the multiple points of view of the Chinese doctoral students. Given the under-researched nature of self-perceptions of Chinese doctoral students, the questionnaire data employed within a qualitative-constructivist outlook was considered as one method amongst others, of creating constructed knowledge in terms of showing a descriptive context of the extent to which and how Chinese doctoral students constructed self-perceived employability and forms of capital. The quantitative data used in this study was primarily for pragmatic reasons, but it did augment findings and admitted the possibility of employing both quantitative and qualitative methods as part of the knowing process. In addition, by encouraging Chinese doctoral students to speak freely about their experiences and reflections gave researcher an insight into the use of statistical measures and methods. In addition, these multiple interpretations of Chinese doctoral students' recollections and perceptions of experiences helped to elaborate the possession, position and process of self-perceived employability (Holmes, 2013). Hence, this triangulation method used in data collection was to augment findings rather than validate them. In line with the purpose of using this triangulation technique, any consensus identified was subject to delimitations as highlighted within the constructivist research (Lincoln and Guba, 1985), while any disagreements that were identified were the source of discussion and additional insights into understand these identification of

contextualised meaning of experiences and perceptions, not potential invalidity. The details of research methods and used instruments have been demonstrated in the followings.

3.3.1 Online survey

Saunders *et al*. (2013) suggested that the design of a survey questionnaire depends on how it is to be administered and how resources such as time and budgets are to influence on the decision makings. The quantitative data collection method used in this study was online survey, by assessing the level of Chinese doctoral students' self-perceived employability and the formation of forms of capital which evaluated by themselves. The rationale of using self-administered online survey was because it has the ethical advantages as the site for online survey is password-protected and the results of this study do not allow individuals to be identified. In addition, the use of online survey was more likely to cover geographically spread sample as some senior doctoral students might not in campus, and some STEM doctoral students might study in the building, where needed for specific access permission. The online survey consisted of three questionnaires – they were participants' biographical information, self-perceived employability and forms of capital questionnaire (Appendix C). A several psychometric instruments used in this survey study were not originally developed, but they were existing scales and have been validated and contextualised by researcher prior to data collection.

3.3.1.1 Searching the suitable instruments from literature

The emphasis of the psychometric instrument selection in this study has been around how to best measure Chinese doctoral students' employability and graduate capital directly, where they can make a self-report assessment. The diagnostic instruments were very sparse (Dacre-Pool *et al.*, 2014), so that this study searched a set of existing and operationalised scales which drew upon the broader employability and career literature.

The scale used for assessing Chinese doctoral students' self-perceived employability was developed by Rothwell *et al.* (2008). The rationale of using this psychometric instrument was because it considered the sample who was not in employment and the multidimensional aspects of student's employability. The Cronbach's alpha value above .7 is considered acceptable for internal consistency reliability of the scale to be used (Pallant, 2013). Both undergraduate and postgraduate studies suggested a good internal consistency reliability for using Rothwell's self-perceived employability scale (Rothwell *et al.*, 2008; Rothwell *et al.*, 2009). The 16-items scale was developed

based upon the four-sided model (see Figure 3.1), with scale items representing the either the primary influence of each of the components – my university, my field of study, the state of the external labour market and self-beliefs (in cells 2, 4, 6, 8), or the interaction of the two adjacent components (in cells 1, 3, 5, 7).

STUDENT SELF-PERCEIVED EMPLOYABILITY

	My university		
	1.My engagement with my studies and academic performance	2.My perception of the strength of the university's brand	3.The reputation my university has within my field of study
Self-belief	8.My confidence in my skills and abilities		4.The status and credibility of my field of study **My field of study**
	7.My awareness of opportunities in the external labour market	6.My perception of the state of the external labour market	5.The external labour market's demand for people in my subject area
		The state of the external labour market	

Figure 3.1 Self-perceived employability matrix (Rothwell *et al.*, 2008)

According to the introduction from scale developers, there should have both internal and external dimensions in the scale, which was in line with much of the existing literature advocated employability is a multi-faceted construct (Rothwell *et al.*, 2008; Forrier and Sels, 2003). The internal factors consisted of job-related knowledge and skills, and mastery of job search as well as individual's potential to learn, which were encapsulated under the heading of 'self-belief' in this scale. The prevailing state of the external labour market, together with the impact on university brand and the chosen field of study was used for capturing the external employability of students who were not in employment yet. It is important to notice here, the scale for 'ambition' which was used for a proxy for perceptions of future career success was not included in this study. The absence of ambition scale was for two reasons. Firstly, too many questions would overload participants, thereby it might influence the quality of this survey. Secondly, the career success was not the focus of this study.

To better understand the measure of subjective employability, the mapping between components, cell and 16 items were represented in Table 3.1. The items in cell '1' were used to represent the

level of engagement students applied to their studies, with the emphasis on the interaction of the influence of the university, and individual skills and behaviours. The cell '2' and '3' were intended to explore the impact of the university brand and ranking on a student's perception. Whilst the cell '3' comprised the interaction of the two adjacent component – 'my university' and 'my field of study'. To examine the items – 'My university has an outstanding reputation in my field(s) study' and 'Employers specifically target this university in order to recruit individuals from my subject area(s)' enabled the researcher to obtain information in terms of the demand for individuals with degree in particular subject varies, and how they understood the market conditions as well as the labour market opportunities which operated by university and discipline ranking. The cell '4' were intended to represent student's recognition that varies between subjects with their future employment outcomes. While the state of the external labour market were intended to assess student's perception through the items in cell '5', '6' and '7'. The items in cell '8' were intended to represent student's personal confidence and efficacy as well as their skills that have been developed through the degree study. It was clearly shown that the length of the scale has been taken care because the overall self-perceived employability tool was long enough to have every chance of good internal reliability and without overloading the respondents (Rothwell *et al.*, 2008). In line with the purpose of using quantitative data in this study, this appraisal led to Chinese doctoral students' attribution of their self-perceived employability that helped researcher to obtain a description of the perceptions of Chinese doctoral students having on themselves.

Table 3.1 Mapping between components, cells and 16 items in Rothwell's scale.

Component	**Cell**	**Item**
My university/ self-belief	1.My engagement with my studies and academic performance	1a. I achieve high grades in relation to my studies. 1b. I regard my academic work as top priority.
My university	2.My perception of the strength of the university's brand	2a. Employers are eager to employ graduates from my university. 2b. The status of this university is a significant asset to me in job seeking.
My university/My field of study	3.The reputation my university has within my field of study	3a. Employers specifically target this university in order to recruit individuals from my subject area(s). 3b. My university has an outstanding reputation in my field(s) of study.
My field of study	4.The status and credibility of my field of study	4a. A lot more people apply for my degree than there are places available. 4b. My chosen subject(s) rank(s) highly in terms of social status.
My field of study/ the state of the external labour market	5.The external labour market's demand for people in my subject area	5a. People in the career I am aiming for are in high demand in the external labour market. 5b. My degree is seen as leading to a specific career that is generally perceived as highly desirable.
The state of the external labour market	6.My perception of the state of the external labour market	6a. There is generally a strong demand for graduates at the present time. 6b. There are plenty of job vacancies in the geographical area where I am looking.

The state of the external labour market/self-belief	7.My awareness of opportunities in the external labour market	7a. I can easily find out about opportunities in my chosen field. 7b. The skills and abilities that I possess are what employers are looking for.
Self-belief	8.My confidence in my skills and abilities	8a. I am generally confident of success in job Interviews and selection events. 8b. I feel I could get any job so long as my skills and experience are reasonably relevant.

In addition, there existed many questions around how to best assess Chinese doctoral students' perceptions of the forms of capital. For example, the existing diagnostic instrument was unavailable. Therefore, several considerations guided the selection of instruments for graduate capital items. Firstly, they should have a solid theoretical foundation in employability literature. Underpinned Tomlinson's (2017a) graduate capital approach, it was clearly shown that graduate capital model consisted of many different aspects of students' formation of skills, knowledge, social relations, cultural praxis, identities and psycho-social dispositions. Hence, the selected items should be compatible with the definition of each capital in Tomlinson's graduate capital model, and they were able to represent the immediate relation that doctoral students with the labour market. To date, only human capital, social capital, identity capital and psychological capital have found the existing scales which are operationalised.

The absence of cultural capital in the measure of graduate capital was for two reasons. Firstly, there was a shortage of operationalised cultural capital instrument related to the definitions that Tomlinson (2017a) given. Most of the existing measurement of cultural capital has been analogous to the measurements of human capital, but it has largely excluded skills and other forms of technical ability (Kalfa and Taksa, 2015). In addition, the concept itself raised a number of problems that needed to be discussed relatively and contextually. As argued by Li (2013), a new structure of social stratification is still emerging rather than an existing form being reproduced in China. Despite cultural capital has been widely used in the UK context to explore how well the middle classes have used for positioning themselves advantageously in the labour market (Li, 2013), it might be difficult to measure the particular social practices and values in a new structure of social stratification context, such as China. Although cultural capital was excluded in the quantitative measurement, the rich and detailed description of interview data provided an insight to understand the meaning of cultural capital to Chinese doctoral students which would assist to the psychometric scale development in the future study.

The instruments for assessing the possession of one's human capital and social capital resources were developed by Hirschi *et al.* (2017). The scale of human capital was primarily to assess the level of order that knowledge and skills expected of students and form the foundations for them to the labour market. The human capital resources consisted of three scales, namely occupational

expertise, job market knowledge and soft skills. Each item related to each scale have a solid theoretical foundation in employability research and have been widely used in career transition studies (McQuaid and Lindsay, 2005; Eby *et al.*, 2003; Hirschi, 2012). The items of occupational expertise concerned the strong immediate relationship between what individuals possessed and their desired occupations, which helped to explore the level of participants' possessed occupation specific knowledge and competencies. The items of job market knowledge further strengthened this link between human capital and the wider labour market through assessing the degree of students' possessed general labour market knowledge and employment trends. The items related to soft skills helped to frame the understanding of the degree of students' possessed skills and competencies that are relevant for broad range of jobs. All scales have been validated and obtained the Cronbach's alpha with .8 with two groups of student sample (Hirschi *et al.*, 2017), which suggested a good internal consistency of these scales to be used for Chinese doctoral students. Additionally, the social capital resources comprised two scales – they were social career support and networking. The items of social career support assessed the degree of individual received career related support from their social relations, and the items of networking were intended to assess students' perceptions on the extent to which social contacts were built, maintained and utilised in relation to their career development. The Cronbach's alpha for two scales all achieved over .80 with the data from two groups of student sample (Hirschi *et al.*, 2017), which also suggested a good internal consistency of these scales to be used for Chinese doctoral students.

Identity capital has been defined as 'the level of personal investment a graduate makes towards the development of their future career and employability' (Tomlinson, 2017a, p.346). The scales of 'career exploration' and 'career clarity' have been chosen to assess Chinese doctoral students' perceptions of self-concepts which associated with how they were able to form around personal development towards their future career. The scale of career exploration has been received considerable empirical support as it 'aimed at eliciting information about oneself or one's environment in order to make a decision about important life choice (Grotevant, cited in Praskova *et al.*, 2015, p.146). The scale utilised in this study was developed by Stumpf *et al.* (1983), which incorporated the items in relation to the exploration of students on themselves as well as the explorations on wider labour market. The Cronbach's alpha reported in Praskova's *et al.* (2015) study was of .91, and illustrated validity by finding correlations with the positive paths to individuals' perceived employability within the study. The instrument for assessing the clarity and self-determination of one's career goals was developed by Dobrow and Higgins (2005). The reason for selecting this scale was because it represented the level of one's active notion of identity development through acquiring the ability to process feedback about the self and achieve self-awareness, and also through the interaction that they have with their environments (Dobrow and

Higgins, 2005). The scale of clarity were subjected to psychometric analyses and obtained the Cronbach's alpha of .90 on two of the previous studies (Dobrow and Higgins, 2005).

The final one comprised two scales, they were 'resilience' and 'adaptability'. This study assessed Chinese doctoral students' perceptions of the level of resilience with the subset of Luthans's *et al.* (2007) psychological capital scale. The original scale was developed as compound measure consisting of four subscales, namely 'hope', 'optimism', 'resilience' and 'self-efficacy'. It has been used to assess and enhance employed individuals' psychological, and its items are closely tied to the work place state (Chen and Lim, 2012). The key element of psychological capital in Tomlinson's (2017a, p.348) graduate capital model is 'how well individuals are able to withstand what is likely to be inevitable pressure and set-backs over the course of a career, as well as how flexible they are'. Thus, the use of scale of resilience enabled this study to explore the level of Chinese doctoral students imagined how they would withstand pressures and disruptions in the early stage of their career transitions. Given the student sample was not in employment, each item in the scale of 'resilience' has added the scenario-based information (i.e. 'in my job search') to contextualise the scale to be more suitable for the context under study. The scale of proactive personality developed by Bateman and Crant (1993) has been used as proxy measures for adaptability in this study. The scale of proactive personality has been widely used empirically as proxy measures for adaptability as it helps to assess one's plan for future challenges and manipulating potential future outcomes to positive effect. Empirical study has reported the Cronbach's alpha of using this proactive personality scale of .87 (McArdle *et al.*, 2007), which suggested a good internal consistency of this scale to be used in this study.

3.3.1.2 The development of questionnaires

Prior to administering the data collection of main field study, this research has conducted a pilot study to test the psychometric qualities of these existing measurement instruments. A multiple approach has been utilised within the pilot study as that helped to ascertain reliability and validity of scales, in which also consisted of statistical, judgmental and parsimony criteria to eliminate the items from multi-item scale (Wieland *et al.*, 2017). Following the ethical approval (Appendix A), participants of pilot study were recruited via posters, social media and individuals email. The database consisted of 81 Chinese doctoral students who completed an online survey, a small group of Chinese doctoral students who took a qualitative assessment of the appropriateness of textual data, and as well as two Chinese researchers who completed the theme alignment activity. No demographic data was collected in this pilot study as these data were for enhancing the tool properties. The data collection activities within the pilot study were summarised in Table 3.2.

Table 3.2 Summary of data collection activities with pilot study

Instrument	Who	Number	How
Survey	Chinese doctoral students in University of Southampton	81	online
Interview	Chinese doctoral students who completed the online-survey	5	face-to-face
Survey & interview	Chinese researchers who had experience in conducting psychometric study	2	theme alignment activity, face-to-face

3.3.1.2.1 Sample and procedures

Due to the difficulty of obtaining the permission from gatekeepers to get access to the university in the mainland of China, the survey study chose the sample who had certain similar characteristics like the one within the main field work. Hence, all online survey respondents at least attended the undergraduate programme in China and have a good command of both English and Chinese. Choosing the sample who had the established knowledge about Chinese HE system and specific characteristics similar to the target sample was a pragmatic choice, but it was considered as the appropriate way to enhance the quality of scales.

Following an online consent form, 81 survey respondents were then taken via iSurvey (www.isurvey.soton.ac.uk) system to complete the three questionnaires. Responses to each psychometric question were used a 5-points Likert scale with 1 representing 'strongly disagree' to 5 'strongly agree'. The usual ethical considerations related to maintaining participants' anonymity and confidentiality of responses were given, but individuals were asked to volunteer to participate in the follow-up qualitative interview by providing their email address at the end of online survey. In total, 5 participants from different disciplinary areas were approached separately by the researcher and asked their comments on the content of the questionnaire by using the following questions:

1. Does the questionnaire and translation of each item make sense, is it easy for you to follow?
2. Do the areas covered theme accurate in relation to PhD student's employability?

Furthermore, the combination of survey and qualitative approach was taken to conduct the theme alignment activity with two Chinese researchers in order to ascertain content validity. They had

been given an instruction sheet, theme definitions and questionnaire items on the basis of a 5-points Likert scale from 1 representing 'does not fit at all to this factor' through to 5 'excellent fit to this factor', to evaluate whether each item in the questionnaire measured what they were supposed to measure (Appendix B).

3.3.1.2.2 Results of pilot study

Analyses of online survey data were conducted using IBM SPSS V24. A crucial step of employing the existing scales into the new context and new population was to estimate the reliability of the measurement instrument. As Punch and Oancea (2014, p.296) noted, 'reliability enables us to estimate error, and reliability and error are related reciprocally – the larger the reliability, the smaller the error and conversely, the smaller the reliability, the larger the error'. The reliability analyses were conducted on the remaining the questionnaire items by using Cronbach's alpha to ensure the internal consistency of the items. Table 3.3 outlined the results of reliability analysis.

Table 3.3 Reliability analysis, means and standard deviations for each psychometric scale (N = 81)

Scale	Mean (range)	SD	α
Self-perceived employability	53.87 (16-80)	10.282	.917
Occupational expertise	10.46 (3-15)	2.459	.867
Job market knowledge	8.97 (3-15)	2.694	.908
Soft skills	10.43 (3-15)	2.274	.817
Career support	13.10 (4-20)	2.955	.824
Networking	10.34 (3-15)	2.444	.829
Career exploration	38.43 (11-55)	7.457	.906
Clarity	12.01 (4-20)	3.100	.691
Resilience	20.09 (6-30)	4.142	.776
Adaptability	60.30 (17-85)	7.886	.864

The suitability of data for factor analysis was assessed before performing PCA (Principal components analysis). The sample size within the pilot study has been found as a confounding factor as the number of online survey respondents was less than the recommended sample size of 150, and survey itself consisted of lots of variables (Tabachnick and Fidell, 2014). Thus, the

inspection of the correlation matrix of coefficients, the Kaiser-Meyer-Olkin (1970) and Bartlett's Test of Sphericity (1954) have been used to estimate the inter-correlations among the items and factorability of the scale. The inspection of the correlation matrix of self-perceived employability and graduate capital scale indicated the presences of many coefficients of .30 and above, and any items did not correlate with other items at above .30 were considered to remove. The inspection of multicollinearity revealed there were two items correlating above .80 in the graduate capital scale as recommended by Pallant (2013) should be removed.

The Kaiser-Meyer-Olkin measure of self-perceived employability scale was .849, exceeding the recommended value of 0.6 (Kaiser, 1970). The value of Bartlett's Test of Sphericity reached statistical significance level ($p < .001$), suggesting the factorability of the correlation matrix (Bartlett, 1954). The communalities results indicated the presence of communalities between .510 and .808, which indicated a acceptable range. There were no communalities less than .40, indicating the good relationships between the items. As mentioned earlier, the small sample size and lots of variables has been considered as a confounding factor of this pilot, so it is argued to look for eigenvalues of greater 1 when utilised the smaller sample size (Kaiser, 1970). The results of eigenvalues (greater than 1) indicated that 56.27% of the variance of self-perceived employability could be explained by the fixed two factor structure, which nearly reached the minimum acceptable level of 60% as recommended by Hinkin (1998).

Additionally, the Kaiser-Meyer-Olkin measure of graduate capital scale was .737 and Bartlett's Test of Sphericity reached statistical significance ($p < .001$). The communalities results suggested the presence of communalities ranged from .476 to .846, which was well within the acceptable range. Eigenvalues (greater than 1) indicated fixed nine components could explain 69.89% of total variance of graduate capital, which reached the minimum acceptable level of 60%. It was clearly shown that there were some statistically distinct factors in the graduate capital model, especially some items loaded onto more than one factor. In order to improve the qualities of psychometric tool and maintain statistically rigorous, researcher followed Field's (2018) guidelines to inform decisions about item fit. Firstly, retaining items with component values greater than 0.40. Secondly, removing items which cross loaded onto more than one component with values greater than 0.5. Inspecting the pattern matrix and applying the above guidelines, the preliminary analysis led to 17 items considered to be removed from the graduate capital scale.

Five Chinese doctoral students who volunteered a light tough qualitative assessment have been approached by researcher and have been asked their comments on the content of the questionnaires and translation. None of the participants had objection on the content and translation, but some of them raised the issue in relation to the length of the questionnaire.

Furthermore, two Chinese researchers had completed the theme alignment activity sheet and identified agreement in item allocation. The theme alignment activity led 20 items have been considered to remove from the graduate capital scale as two reviewers thought these items were not rated as 'clearly representative' of the construct under study and none being removed from the self-perceived employability scale. Of note was two Chinese researchers raised two same items into 'does not fit' category in the graduate capital scale. The dissent items were 'Besides pure expert knowledge, I possess many skills and competencies that are important in different jobs' and 'I focused my thoughts on me as a person'.

Based upon Wieland's *et al.* (2017) framework of statistical and judgmental criteria of scale-purification decisions, researcher mainly eliminated the items on the basis of reliability, validity and parsimony. In total, three phases of pilot study led 22 items to be removed from the graduate capital scale and none being removed from self-perceived employability scale. Hence, the final version of psychometric scales comprised 16-items self-perceived employability and 31-items of graduate capital scale and were listed in the following Table 3.4.

Table 3.4 Final version of the psychometric scales following the analysis of pilot study

Scale	**Questions**
Self-perceived employability	• I achieve high grades in relation to my studies. • I regard my academic work as priority. • Employers are eager to employ graduates from my university. • The status of this university is a significant asset to me in job seeking. • Employers specifically target this university in order to recruit individuals from my subject area(s). • My university has an outstanding reputation in my field(s) of study. • A lot more people apply for my degree than there are places available. • My chosen subject(s) rank(s) highly in terms of social status. • People in the career I am aiming for are in high demand in the external labour market. • My degree is seen as a leading to a specific career that is generally perceived as highly desirable. • There is generally a strong demand for graduates at the present time. • There are plenty of job vacancies in the geographical area where I am looking. • I can easily find out about opportunities in my chosen field. • The skills and abilities that I possess are what employers are looking for. • I am generally confident of success in job interviews and selection events. • I feel I could get any job so long as my skills and experience are reasonable relevant.

Human capital	• Others see me as an expert in my desired occupation. • I possess profound knowledge for my desired occupation. • I have a very high level of expertise and skill for my desired occupation. • I have a good knowledge pf the job market. • I have a lot of knowledge about the current labour market. • I have a good overview of employment trends in the labour market. • I have many skills that I could use in a range of different occupations. • I possess many competencies that are also helpful in various other occupations. ~~• Besides pure expert knowledge, I possess many skills and competencies that are important in different jobs.~~
Social capital	• I know many people who support me in my career development. • My friends support me in my career development. • I receive a high level of career support from my social environment. • My fellow students/supervisors support me in my career development. • I always try to be well connected in my aspired professional field. • I frequently build contacts with other people who are important for my career development. • I frequently utilise contacts with other people to advance in my career.
Identity capital	• I investigate career possibilities. ~~• I went to various career orientation programs.~~ • I obtained information on specific jobs or companies. • I initiated conversations with knowledge individuals in my career area. • I obtained information on the labour market and general job opportunities in my career area. • I sought information on specific areas of career interest. • I reflected on how my past integrates with my future career. ~~• I focused my thoughts on me as a person.~~ ~~• I contemplated my past.~~ ~~• I have been retrospective in thinking about my career.~~ ~~• I understand a new relevance of past behaviour for my future career.~~ • I have developed a clear career and professional identity. ~~• I am still searching my career and my professional identity.~~ • I know who I am, professionally and in my career. ~~• I do not yet know what my career and professional identity is.~~
Psychological capital	~~• When I have a setback in my job search, I have trouble recovering from it.~~ ~~• In my job search, I usually manage difficulties one way or another.~~ • I can be 'on my own', in my job search, if I have to. • I usually take stressful things in my job search in stride. • I can get through difficult times in my job search because I have experienced difficulties before. ~~• I feel I can handle many things at a time in my job search.~~ ~~• I am constantly on the lookout for new ways to improve my life.~~ ~~• I feel driven to make a difference in my community, and maybe the world.~~ ~~• I tend to let others take the initiatives to start new projects.~~ • Wherever I have been, I have been a powerful force for constructive change. ~~• I enjoy facing and overcoming obstacles to my ideas.~~ • Nothing is more exciting than seeing my ideas turn into reality. ~~• If I see something I do not like, I fix it.~~ ~~• No matter what the odds, if I believe in something I will make it happen.~~ ~~• I love being a champion for my ideas, even against others' opposition.~~ • I excel at identifying opportunities. ~~• I am always looking for better ways to do things.~~ ~~• If I believe in an idea, no obstacle will prevent me from making it happen.~~ • I love to challenge the status quo. • When I have a problem, I tackle it head-on. ~~• I am great at turning problems into opportunities.~~ ~~• I can spot a good opportunity long before others can.~~

3.3.2 Semi-structured interview

In line with the research paradigm and strategy, this study has rooted in understanding some complex interpreting meaning from Chinese doctoral students in relation to self-perceived employability and forms of capital. The interview is the most prominent data collection tool in qualitative-oriented research as it helps to assess individual's perceptions, meanings, definitions of situations and constructions of reality (Punch, 2014). This study has applied semi-structured interview in the qualitative data collection, and the details of interview plan can be seen in Appendix D. All interviewed were audio recorded, transcribed shortly afterwards with the support of Microsoft Word and analysed with the support of NVivo 11 software.

Compared with the unstructured interview, the advantage of using semi-structured interview enabled researcher to draw upon theoretical constructs on the basis of graduate capital theory, and thereby elaborated and examined them, and then intertwined with the quantitative data to understand why Chinese doctoral students think or act as they do. As previously stated, any consensus identified was subject to delimitations as highlighted in the constructivist-oriented study, whilst any disagreements that were identified were the source of discussion and additional insights into understand these contextualised meaning. Compared with the structured mode of interview, the advantage of using semi-structured interview was it offered more freedom for Chinese doctoral students to speak freely about their reflections and experiences in relation to the research questions of this study. Thus, the use of this approach contributed to researcher's understanding around why participants have made certain career decisions and what formations and the use of forms of capital would support their potentially employability development and management by encouraging them to articulate their own values and motivations towards taking a doctorate and identifying the role that they would like to play when they approach to the labour market. As such, this approach enabled researcher to obtain the deeper understanding associated with how Chinese doctoral students make sense of the labour market and their own place within it by discussing the past, the present and imagined future.

3.3.2.1 Interview questions

A list of guiding questions was used in the data collection of interview phase based on the research questions. These guiding questions were adapted and woven into the interview process where possible. In addition, some probes have been used when researcher felt participants had not thoroughly talked about this point. The interview questions were listed in the following Table 3.5.

Table 3.5 Interview questions and probes

About you	Discipline; subject; year of study; mode of study; education experience; work experience Probe- could you please tell me something about your experience until now?
Explore who you are (values; interests; strengths; motivations)	Why do you decide to study PhD? How do you feel about your employment prospects?
I**nvestigate what is out there** (How participants understand their future progression?)	How do you think about the current competition for doctoral students? (Do you intend to work in your discipline area after graduating? Is there any opportunities for PhD holders?) What do you do to manage employability in respond to the competition you talked about?
How you get there (How participants understand each important facet of capital resources and engage into their employability development towards the next milestone/ career step?)	**Human capital**: How much do you think your subject-based knowledge will help you in your future careers? Probe – so how important is your subject knowledge, e.g, your social science for future jobs? Except the knowledge and skills you learned from discipline study, what strengths, knowledge and skills do you have and can use in your desired profession?
	Social capital: How would you view the importance of social contacts in relation to future employment? Probe – Have there been examples when these have helped you access or find out jobs?
	Cultural capital: How do you make sense of the job market and your own place within it? How well you know your desired occupation? How aware are you of your knowledge, dispositions and behaviours that align to your desired profession? Probe-How much do you feel you understand the culture/cultural context in XX?
	Identity capital: How important is developing a XX career to you? How often do you think about your career and what you want from future work? Probe-Do you think these reflect wider goals and values you have?
	Psychological capital: How do you understand the maintenance of a relatively positive, proactive and resourceful mind-set to future job search? e.g Can you provide any examples when you've had to cope with challenges situations in relation to job search or future employment?

3.3.2.2 Participants and mock interview

Five participants who took part in mock interview were recruited from the poster within the target university. The interview has been audio recorded and researcher has asked participants to sign

their consent before they started to answer any questions. None of mock data has been analysed as the objective of conducting mock interview was to provide researcher an opportunity to develop her skills as an interviewer and to consider the time requirement of data collection within the main field study, and as well as to identify any contentious issues that arose from the interview questions. By conducting the mock interview, researcher has found it was inevitable for five participants to talk about the past, especially their experiences in relation to the Gaokao (National university entrance examination in China) and how that related to the present, and their ideally future. Thus, some interview questions have been slightly changed and there additional tailored questions related to each main research question were woven into the interview conversations at the appropriate time point in order to elicit a further understanding of Chinese doctoral students' perceptions and reflections. It was estimated the time for interviewing would not last more than one hour. The final version of interview guiding questions and probes were listed in the following Table 3.6.

Table 3.6 The final version of interview guiding questions and probes

About you	Discipline; subject; year of study; mode of study; education experience; work experience Probe- could you please tell me something about your experience since Gaokao until now?
Explore who you are (values; interests; strengths; motivations)	Why do you decide to study PhD? How do you feel about your employment prospects?
I**nvestigate what is out there** (How participants understand their future progression?)	How do you think about the current labour market of doctoral students? Do you intend to work in your discipline area after graduating? Is there any opportunities for PhD holders?
How you get there (How participants understand each important facet of capital resources and engage into their employability development towards the next milestone/ career step?)	**Human capital**: How much do you think your subject-based knowledge will help you in your future careers? Probe – so how important is your subject knowledge, e.g, your social science for future jobs? Probe – how important is your X for your future jobs? Except the knowledge and skills you learned from discipline study, what strengths, knowledge and skills do you have and can use in your desired profession?
	Social capital: How would you view the importance of social contacts in relation to future employment? Probe – Have there been examples when these have helped you access or find out jobs? Probe- Have people in your academic environment, e.g peers, supervisors, been helpful in opening up job opportunities?

	Cultural capital: How do you make sense of the job market and your own place within it? How well you know your desired occupation? How aware are you of your knowledge, dispositions and behaviours that align to your desired profession? Probe-How much do you feel you understand the culture/cultural context in XX? Probe- Have there been examples to show your understanding of desired occupation?
	Identity capital: How important is developing a XX career to you? How often do you think about your career and what you want from future work? Probe-Do you think these reflect wider goals and values you have?
	Psychological capital: How do you understand the maintenance of a relatively positive, proactive and resourceful mind-set to future job search? e.g Can you provide any examples when you've had to cope with challenges situations in relation to job search or future employment?

3.4 Data collection of main field study

3.4.1 The site and access

It is argued access is a key issue that must be decided in conducting empirical study. As stated by Cohen *et al.* (2007, p.109), 'researcher will need to ensure that access is not only permitted but also, in fact, practicable'. In hindsight of the pilot study, the biggest challenge in relation to data collection from doctoral students was the need to ensure sufficient research participants. Thus, researcher has wrote the gatekeepers with email prior to administering the data collection, which involved the thorough research plan, including specifies the extent of times, the potential impact and the outcomes of the research. Given the exploratory nature of the investigation of the study and the need to conduct data collection within a short time span, the strategy of sampling by volunteer and snowball criteria have been used in the phase of choosing the site and gaining access to target sample.

The university chosen is a research-intensive and comprehensive institution in China. It has the good reputation and includes a variety of doctoral disciplines which fitted the purpose of this study but also, in fact, it was convenient for researcher to gain access to the target sample. This is because graduate school has offered the support in terms of promoted this study via their internal channel.

As such, data collection of both quantitative and qualitative phase relied on volunteers and snowball sampling approach as it was difficult to approach doctoral students in campus. The informal discussion with gatekeepers before the data collection has revealed the difficulty of collecting data from doctoral students as the need to obtain alternative permission to gain access to the building where STEM students usually are, and most of senior students may not stay in campus for many reasons. Although the aim of this study was not for generalisation, the sample chosen still need to meet the characteristics in which this study sought for. For example, the sample must study Philosophy doctorate degree in the target university and their nationalities are Chinese.

3.4.2 Survey sample and procedures

There were 254 respondents completed the online survey that were recruited by volunteer and snowball sampling approach. Those who were willing to participate voluntarily in online survey study had received an email from graduate school which included the information about what this survey study is and indicated what participants were involved. The participants have been asked to scan the QR code or click the survey link to access and answer questionnaire online via Wenjuanxing system (www.wjx.cn). The respondents of online survey have been first directed to a page which contained information and explanation regarding what the survey is about and requesting for their consent in participating in the survey before they started to answer any of questions. The online consent has provided the clear notice that respondents could withdraw at any time before they submit their answers. However, they cannot withdraw after completed the survey as it is an anonymous survey. Survey respondents have been asked to leave their email address if they would like to take part in the follow-up interview study.

3.4.3 Interview participants and procedures

107 participants who completed online survey initially indicated their interests to participate the follow-up qualitative study and were sent an email directly to ask them to contact the researcher if they would still like to participate. Of this group, 33 replied the email and indicated further interest. Thirty-one participants confirmed the date and did a face-to-face interview with the researcher, while the remaining 2 participants decided to withdraw due to personal reasons and time constraints. Table 3.7 provided the details of 31 interview participants' profile.

Table 3.7 The details of 31 interview participants' profile.

Participant	Gender	Discipline	STEM	Year	Working experience (prior work experience)	Master experience	In relationships
Alan	M	E	Y	1	N	Y	Y
Bella	F	G	Y	3	N	Y	N
Charlotte	F	SS	N	1	N	Y	Y
Daisy	F	SS	N	2	N	Y	Y
Emma	F	SS	N	1	N	Y	Y
Finnie	F	S	Y	5	N	N	Y
Gianna	F	S	Y	1	N	N	Y
Hazel	F	S	Y	2	N	Y	Y
Isabella	F	H	N	1	N	Y	Y
Jack	M	E	Y	4	N	Y	N
Lily	F	E	Y	1	Y	Y	Y
Mike	M	SS	N	2	N	Y	N
Nolan	M	S	Y	1	N	N	N
Oliver	M	SS	N	1	N	Y	N
Peter	M	SS	N	2	Y	Y	Y
Lucas	M	H	N	2	Y	Y	Y
Robert	M	SS	N	2	N	Y	N
Sophia	F	SS	N	2	N	Y	N
Tina	F	SS	N	2	Y	Y	Y
John	M	SS	N	1	N	Y	N
Vincent	M	SS	N	2	Y	Y	N
William	M	E	Y	4	Y	Y	N
James	M	H	N	2	N	Y	Y
Yvonne	F	H	N	1	Y	Y	Y
Zoey	F	SS	N	4	N	Y	N
Alice	F	SS	N	1	Y	Y	Y
Ben	M	S	Y	2	N	Y	Y
Calvin	M	S	Y	3	N	Y	Y
David	M	S	Y	3	N	Y	N
Evan	M	E	Y	4	N	Y	Y
Fiona	F	SS	N	2	Y	Y	Y
Discipline: E = Engineering SS = Social science S = Science H = Humanity G = Geology							

The semi-structured interview undertaken in this study was face-to-face and audio-recorded. In the beginning of each interview, researcher has briefly introduced the nature of this interview study. Then each participant has been provided a participant information sheet which contained the aim of this study and an explanation of what involvement mean to them, and has been asked to sign a consent form before the interview started. Finally in the opening minutes at the end of this interview study, each participant has been asked to given their consent verbally again, and were thanked for their time for participation. Interviews in the main field study typically lasted between 40 to 70 minutes. The details of interview plan and questions can be seen in Appendix D.

3.6 Data analysis of main field study

3.6.1 The analysis of quantitative data

There were 254 participants answered the online survey. The survey data has been analysed by using IBM SPSS 24. Figure 3.2 indicated the three main steps in analysing the quantitative data.

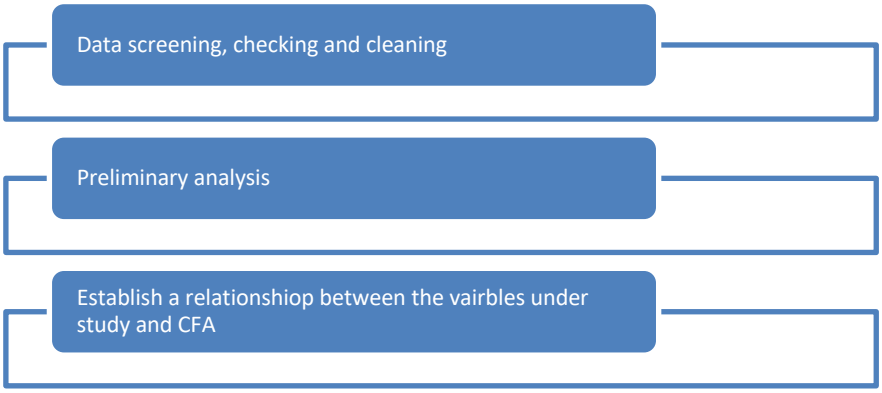


Figure 3.2 Three main steps in analysing the quantitaive data

In the first step, data was checked for the missing values and errors. Following the data screening, 18 participants were excluded due to they had one or more questions in the psychometric scales not completed, resulting in a final of 234 useable questionnaires. Other missing values was conducted by using SPSS 24's 'replace missing values' function. In addition, researcher has transferred and computed variables to ensure all variables were operationalised within SPSS environment. For example, the coding of 'closed' and 'open' questions is a different process. In the case of 'closed' questions, coding involved assigning a numerical value to each response (e.g. Male = 1; Female = 2). While some questions (e.g. geographical location, subject) in the questionnaire were deliberately open, to make sense of them for using SPSS to analyse, data transformation was conducted at the initial process. They were categorised into groups and assigned with a code. It should be also noted that non-random sampling (volunteer sampling and snowball sampling) approach was used to collect the survey data, resulting in some cases questions that the relatively small size of the number of participants in some groups. Take discipline for example, even though the survey advertisement had been promoted three times in the targeted university from different channel, few doctoral students from Geology participated. Thus, it is difficult to rule out the possibility of smaller differences between groups when consider these variables. For that reason, groups with smaller number of participants (less than 30) are identified in the first phase of the data analysis. As a result, some variables (i.e. disciplines, desired future job, and parents' education

level) were categorised into a new group (i.e. whether STEM, (RC) desired future job, (RC) parents' education level) and assigned with a new code due to the necessary for subsequent data analysis. What is more, the minimum and maximum values for each variable were checked to make sense the scores were correct (e.g. the score for 16-items self-perceived employability is only possible for 16 to 80). No other correction were made.

In the second step of preliminary analysis, the aim was to ascertain the descriptive framework of the data. In total, there were two main variables measured by three questionnaires, and the variables used in quantitative data analysis were summarised in Table 3.8. The coefficient alphas has been used initially to estimate the reliability of the survey instrument as the scales have been applied on the new population. The inter-item correlation and exploratory factor analysis have been performed to check the inter-correlations among the items and confirm the presence of the factors. As such, the Kaiser-Meyer-Olkin (1970) has been used to measure the adequacy of sampling and Bartlett's Test of Sphericity (1954) has been applied to check the statistical significance. In addition, the means, standard deviations of each items and scales have been calculated in the descriptive analysis of the survey data. Then some statistical inferences and measures have been used in analysing the quantitative data in order to ascertain relationships and differences between variables (i.e. independent sample t-test, Chi square test of independence. Once the relationship between variables has been established by Confirmatory factor analysis (CFA) by using the AMOS (Arbuckle, 2008), the results of best fitting models could take forward for further analyses, especially by using regression model to identify the relationship between forms of capital and self-perceived employability.

Table 3.8 Variables used in quantitative data analysis

Dependent variables	**Independent variables**
• Self-perceived employability score • Internal-aspect employability score • External-aspect employability score	• Demographic variables: age, gender, whether STEM, stage of the study, work experience, (RC) parents' education level, parents' occupation etc. • Total human capital score • Occupational expertise score • Job market knowledge score • Soft skills score • Total social capital score • Social relations score • Networking score • Total identity capital score • Career exploration score

	• Career clarity score • Total psychological capital score • Resilience score • Adaptability score

3.6.2 The analysis of qualitative data

The method of qualitative data analysis chosen for this study was the approach of thematic analysis by using NVivo 11 software. Thematic analysis has been widely used in analysing qualitative interviews. The advantage of using thematic analysis in the process of identifying themes was because of its flexible nature as it is not tied to a particular epistemological or theoretical perspective (Braun and Clarke, 2006). The reason for choosing this method of qualitative analysis was that 'rigorous thematic approach can produce an insightful analysis that answers particular research questions' (Braun and Clarke, 2006, p.97). The data used in the thematic analysis was 31 semi-structured interviews with Chinese doctoral students that explored about their perceptions of self-perceived employability and forms of capital. All interviews were transcribed verbatim in Chinese. Following Braun and Clark's (2006) six-step thematic analysis guide (Figure 3.3), this study has used a hybrid approach to conduct coding. The coding approach comprised a deductive analysis that was driven by the research questions and also an inductive way that was driven by the interview data itself.

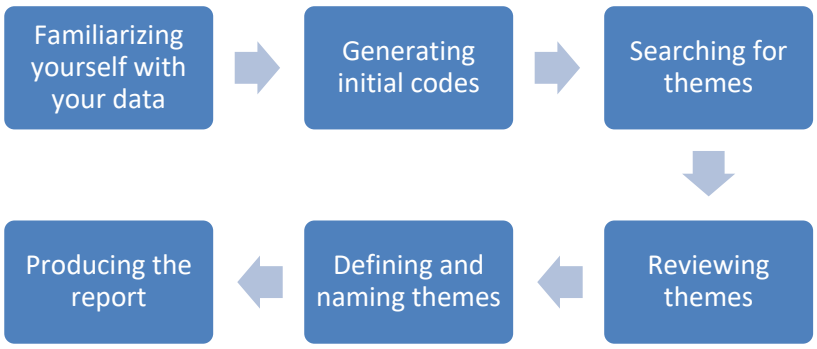


Figure 3.3 Braun and Clarke's (2006) six phases of thematic analysis

The first step within the qualitative analysis was to familiarise with the data. The audio recording of 31 interviews were listened to a number of times for ensuring their accurate transcriptions in

Chinese verbatim, by the researcher. The importance of familiarising with the data was the interviews as they were transcribed was first for researcher to understand the depth and breadth of the content rather than the language features. Meanwhile, researcher has read, and re-read all interview transcripts before go further analyses. Of note was researcher has made notes and had some initial code ideas in this step. Given the use of hybrid approach in thematic analysis, researcher has initially used some pre-set codes to code each segment of data in order to check if the data were consistent with the research questions and providing sufficient information, which was guided by the framework of this study. For example, the analysis have utilised the key resources related to each form of graduate capital as the pre-sets codes. Then a more inductive way of analysis has been used to capture something interesting about the research questions which used line-by-line coding to code every single line with a focus on identifying patterns of meaning. For example, there was a code labelled 'positional competition' under which there were some sub-label codes such as 'the importance of the reputation of credential university', 'the importance of overseas experiences', 'the importance of publications' and 'the importance of other academic experiences'. As many participants mentioned 'the degree is not enough' and they have to rely on other positional goods in competing for professional jobs, these sub-codes were coded to explain the meaning of the pattern of 'positional competition' on the basis of the interviewees' perceptions.. Of note was this coding process was based on the interview transcripts in Chinese, but the given codes were all in English, and only the transcript example (Appendix F) and those passages quoted within thesis have been translated into English. See Table 3.9 for an example of codes applied to a short segment of interview transcript.

Table 3.9 Data extract, with codes applied

Data extract	Coded for
I went to a less famous university and studied a 'not-so-hot major'. I studied the advertising in a finance and economics speciality university. The major I studied which is not in line with my university strengths. I thought I was not competitive when compared myself to other students, and I wanted to make a difference and get ahead.	1. University brand 2. The reputation of subject 3. relative positioning

According to Braun and Clarke (2006), the next important step was to search for themes. According to them, 'a theme captures something important about the data in relation to the research

questions, and represents some level of patterned response or meaning within the data set' (Braun and Clarke, 2006, p.82). Thus, themes development in this stage was based upon its significance. In this case, researcher has examined the codes and found some of them clearly fitting together into a theme which were aligned with the research questions that exploring the overarching concepts, such as human capital, social capital, cultural capital, identity capital and psychological capital. The preliminary analysis came up with 11 main categories with their codes which were shown in Table 3.10.

Table 3.10 The preliminary analysis of themes

Theme 1: reasons for taking a PhD codes: credential inflations (unlikely to find a graduate level employment; intensification competition); HE expansion; specific requirement for a job (the importance of getting a doctorate; reputation of credential university; overseas experiences); followed the crowd; aspiration for upward mobility	Theme 2: views on PhD employment codes: employment prospects for PhD graduates; positional competition (the importance of the reputation of credential university; the importance of overseas experiences; the importance of publications; the importance of other academic experiences)	Theme 3: Gender differences family concerns (career aspirations; views towards the work pressure; views towards taking a position); two body problem
Theme 4: parental influence codes: parents' education; parents' occupation; parents' investment for education and etc. parents' involvement with career options; parents' emotional support	Theme 5: Work experience codes: knowing strengths and weakness; knowing personality; knowing the suitability for certain kind of job; clarity of developing an academic career; had job search experience; develop cultural-related knowledge and confidence;	Theme 6: Discipline differences networking behaviours; career pathways;
Theme 7: human capital codes: the importance of getting a doctorate; the importance of subject specialist knowledge; the importance of research competencies and abilities; the importance of publications; lack the development of soft skills	Theme 8: social capital codes: the relations with supervisors; the relations with peers; networking behaviours; academic support; information flows;	Theme 9: cultural capital codes: stand apart from other PhD students; the importance of the reputation of credential university; publications (first author, independent author, core journals); overseas experiences; other academic experiences (experiences of researching; experiences of teaching); cultural-related knowledge and confidence
Theme 11: identity capital codes: career clarity; emergent academic identity; investment for professional development;	Theme 12: psychological capital codes: resilience towards publication rejection/correction; adaptability to the new environment;	

family concerns (career aspiration; views towards the work pressure; views towards taking a position); had always been a student;	deal with the challenges in job search (had job search experiences; had always been a student); develop cultural-related knowledge and confidence; two body problem	

However, it was found some of the codes in the Table 3.10 fitted into one or more themes, because they were repetitive and built up on the previous stage. For example, there was much overlaps between the preliminary theme 1 and 2, as they referred to a PhD student's perception of viewing the value of taking a PhD and the scope of the PhD labour market. In addition, it was found the ambiguity of using work experience as the higher order theme as some codes under which were related to the prior work experience, while some codes referred to obtaining work experience related to the target occupation. Thus, researcher has reviewed, modified and developed these preliminary codes and themes in the fourth and the fifth step. Especially the considerations have been given to those overlapped codes as that might influence whether these preliminary themes should be coherent or should be distinct from each other. In addition, researcher has taken one extract from 31 interview transcripts to do the re-coding in order to check the established codes that satisfied the accuracy of coding. The final version of codes and themes trail was shown in the following Table 3.11, which resulted 11 themes into 6 meta-themes by using both the NVivo software assisted data analysis coupled with manual checks in order to improve trustworthiness, credibility and validity of the qualitative findings.

Table 3.11 The final version of codes and themes trail

Nodes	Themes	Meta-themes
reasons for taking a PhD (credential inflation & HE expansion; followed the crowd; specific requirement for a job; aspiration for upward mobility); aspirations towards future jobs (lifestyle; professional development; parents' expectation) employment prospects (for being a PhD student);	The value of the doctorate and employment prospects	The social construction meaning of employability by Chinese doctoral students
the importance of the reputation of credential university; the importance of overseas experiences; the importance of publications; the importance of other academic experiences)	The labour market rules: positional competition note: what is the labour market reality mean to them – positional competition; the construction of positional competition (which way)	

the importance of getting a doctorate; the importance of subject specialist knowledge; the importance of publications; the importance of research competencies and skills soft skills (value/use?)	developing occupational-specific human capital notes: employment signifier, they are the foundation that students could use to align to their chosen occupation	Understanding and mobilisation of human capital
the relations with supervisors (academic support; information flows); the relations with peers (academic support; information flows); parental influence (education, occupation, and involvement for career options) trust in networking studying paradigm discipline climate networking behaviours related to disciplines differences	valued much on using strong ties / networking behaviours note: discipline	Understanding and mobilisation of social capital
stand apart from other PhD students (what aspects to be distinctive; how to achieve the distinction) developing cultural-valued knowledge and confidence via work experience career pathways related to discipline differences; lack of career exploration; parental influence (education, occupation, involvement for career options)	valued much on developing academic domain valued knowledge and behaviours note: embodied capital and symbolic quality related to academics distinction from others (which ways)	Understanding and mobilisation of cultural capital
prior work experience (knowing strengths and weakness; knowing personality; knowing the suitability for certain kind of job; clarity in developing an academic career); work experience related to target occupation (developed cultural-valued knowledge and confidence); had always been a student; family concerns related to gender differences (career aspirations; views towards the work pressure; views towards taking a position)	emergent academic identity helped professional development and investment note: gender difference in aspiration/commitment	Understanding and mobilisation of identity capital
resilience towards publication rejection/correction; adaptability to the new environment; deal with the challenges in job search (had jobs search experience related to prior work experience; had always been a student; two body problem	having positive mind-sets / coping strategies in the face of withstands and challenges note: work experience	Understanding and mobilisation of psychological capital

3.7 Ethical considerations

According to Punch and Oancea (2014, p.58), 'research ethics is a branch of applied ethics focused on the specific contexts of planning, conducting, communicating and following up research'. The ethical issues of this study have been discussed through the research process as follows.

This study has been approved by the ERGO (Ethics and Research Governance Online) committee in the University of Southampton (Appendix A). Prior to administering the data collection, researcher have filed the application with ERGO committee which contained a brief introduction of the study, the procedures of data collection and information about participants, so ERGO committee can review whether researcher has acknowledged the main ethical issues raised by the study and enable to manage these potential risks. The ERGO applications took two times. The first one was a pilot study which aimed to test the psychometric qualities of the existing scales. The second application consisted of a mock interview and the data collection with target sample by using the online survey and semi-structured interview. Creswell (2014) argued the necessary of obtaining permissions from the gatekeepers to obtain the access. Researcher has contacted the gatekeepers (i.e. head teacher or director of graduate school) in the target university, and obtained permissions from them in order to gain access to the university and to study their doctoral students in the first. More specially, researcher wrote the gatekeepers with email, which involved the thorough research plan, including specifies the extent of times, the potential impact and the outcomes of the research. Once obtained the approval from gatekeepers, researcher has also asked them to help to promote this study via their internal channel.

All participants in either pilot study or main field study have been given the informed consent forms and need to be signed before the data collection as an agreement to the provisions of this study before they provided any data. The consent forms provided the information, which clearly involved that if participants agree freely to be part of research they should understand what their participation entail and how the data would be collected, analysed and reported, and as well as how they could use their right to withdraw the study and treat their data. In terms of the online survey, respondents were firstly directed to a page which contained information to explain what this online survey is and requested for their consent before they started answering any questions. The online consent also provided the clear notice to remind their right. For example, survey respondents can withdraw at any time before they submit the questionnaire. Once they submitted, they cannot withdraw because it is an anonymous survey. In terms of semi-structured interview, researcher has provided each interviewee with participant information sheet before data collection. Researcher has verbally introduced the nature of the study and what involvement mean for them. As such, all interviewees have been asked to sign a consent form and provided permission for audio-

recorded before they provided the data. Finally, in the opening minutes of the interview study, participants have been asked to give their verbal consent to ensure they know their right. For example, interview participants have the rights to control the disclosure of what they deem personal or sensitive information to be reported in the qualitative finding.

In addition, all participants' anonymity and confidentiality have been taken into account within the study. As Hammersley and Traianou suggested (cited in Punch, 2014, p.47), 'confidentiality arises from respect for the right to privacy, and functions as a 'precautionary principle''. One of the strategies used in collecting quantitative data was to use the anonymous online survey. The use of anonymous online survey can maintain respondents' anonymity and confidentiality, which also helped to decline the gatekeepers to use clues to infer the identity of their students. However, one issue raised was related to survey participants who left their email address indicating the intention to participate the follow-up interview study might be potentially identified and easily traced. Regards to this, researcher has utilised certain procedures to maintain the anonymity and confidentiality of participants' data. Firstly, all information of participants' email address have been extracted from the dataset and stored in a separated file. Researcher has only used this information for sending the invitation, and any identifiable information would not be associated with the participants' data.

As such, researcher has put into place a number of procedures to maintain the data safe. This study was compliant with the Data Protection Act/ University Policy, so the data was anonymous and stored on a password protected university computer. Only researcher knows the password and can access the data. What is more, the main ethical issue raised in the data collection of main field study was related to the use of a third party survey software as the ISurvey system is blocked in China. It is important to have aware of the use of third party software as that might influence how and where the data is stored and maintained. Thus, researcher did some research about the online survey providers and had the discussion with some Chinese academics to investigate their reliability and security before used 'Wenjuanxing' system to conduct online survey. During the study itself, only researcher had the access to the data as it has been protected by a password. After the data collection, researcher has exported and removed all data from 'Wenjuanxing' system. All data has been stored in a password protected university computer, and accessed only by the researcher. Data has been treated in accordance with the Data Protection Act.

Moreover, researcher avoided disclosing only positive results. Regarding to this, Creswell (2014) suggested to report the diversity of perspectives about the topic in the qualitative study. As for quantitative data, he stated 'the data analysis should reflect the statistical tests and not be underreported' (Creswell, 2014, p.99).

Chapter 4 Survey results

4.1 Introduction

This chapter outlines the results of the survey. It begins with the results of demographic data, followed by ascertaining the relationships and differences within self-perceived employability and graduate capital scales. Then the fit of hypothesised survey model via confirmatory factor analysis (CFA) was performed. The results of a series of statistical analyses indicated the level of participants' self-perceived employability, and forms of capital, and the relationships with the demographic variables. It provided a descriptive framework of participant data in response to the three overarching research questions.

4.2 Preliminary analysis: descriptive framework of participant data

4.2.2 Principal component analysis (PCA) and scale reliability

Prior to ascertaining the relationships and differences within scales and testing the full hypothesised survey model, PCA was used to test at the item level initially to confirm the dimensions of factors in each scale. This approach was confirmatory factor analysis driven, so 'the number of fix factors' has been applied to test whether the factors loadings of each case was consistent with its theoretical assumption when employed on a new population and context. The PCA was performed with 16-item self-perceived employability scale, 8-item human capital scale, 7-item social capital scale, and 8-item identity capital scale and 8-item psychological capital in order to assess the suitability and dimension of each case.

The sample size of 234 represented a subject to variable (SVR) was 4.98: 1. The inspection of the correlation matrix found a moderate number of the correlation coefficients of .30 or above in each scale. There were no items correlating each other above .80, which suggested the multicollinearity was not an issue for further analysis. The Kaiser-Meyer-Oklin (KMO) exceeded the recommended value of .60 and Bartlett's test of sphericity reached the statistical significance ($p < .001$) in each case. Good internal consistency for each scale was observed. In addition, to assist the interpretations of the factors, oblim rotation was performed which enabled to reveal a relatively simple structure. There might exist some statistically some items loading onto more than one factor, thereby the use of pattern matrix enable to demonstrate the unique contribution of each item to a

factor and was therefore used in the allocation of items to factor headings (Field, 2018). As such, scree plots are more reliable when participants were over 200. Eigenvalues of greater than 1 when using the smaller sample size. The following provided the details instances of each scale.

4.2.2.1 Self-perceived employability scale

In 16-item self-perceived employability scale (M = 53.97, SD = 9.925), the KMO was .894, and Bartlett's of sphericity was significant ($p < .001$). The scale showed a good internal consistency in the pilot study, with a Cronbach alpha coefficient reported of .917. In the current study, the Cronbach alpha coefficient was .906.

Table 4.1 Indicators of self-perceived employability scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.894
Bartlett's Test of Sphericity	Approx. Chi-Square	1805.790
	df	120
	Sig.	.000
Cronbach alpha		.906

To aid the interpretation of the factors within the self-perceived employability scale, oblimin rotation was performed. The PCA revealed the presence of fixed two components with eigenvalues exceeding 1, which explained a total of 52.97% of the variance, with component 1 contributing 42.28% and component 2 contributing 10.69%. The rotation solution indicated a relatively simple structure of the data, with both components showing a number of strong loadings and all variables loading substantially on only one component. As can be seen in Table 4.2, the pattern matrix revealed the unique contribution of each item to a component, with external facet items loading on component 1 and internal facet items loading on component 2. The results of PCA was consistent with the theoretical expectation (Rothwell *et al.*, 2008; Rothwell *et al.*, 2009), which suggested that

university student employability itself might reasonably consist of both internal and external dimensions.

Table 4.2 Pattern matrix of self-perceived employability scale

Item	Component 1	Component 2
E6	.887	
E4	.759	
E5	.697	
E10	.666	
E8	.627	
E7	.580	
E3	.514	
E2	.480	
E1	.470	
E12		-.926
E13		-.839
E9		-.765
E15		-.732
E11		-.711
E14		-.627
E16		-.606
Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. [a] a. Rotation converged in 8 iterations.		

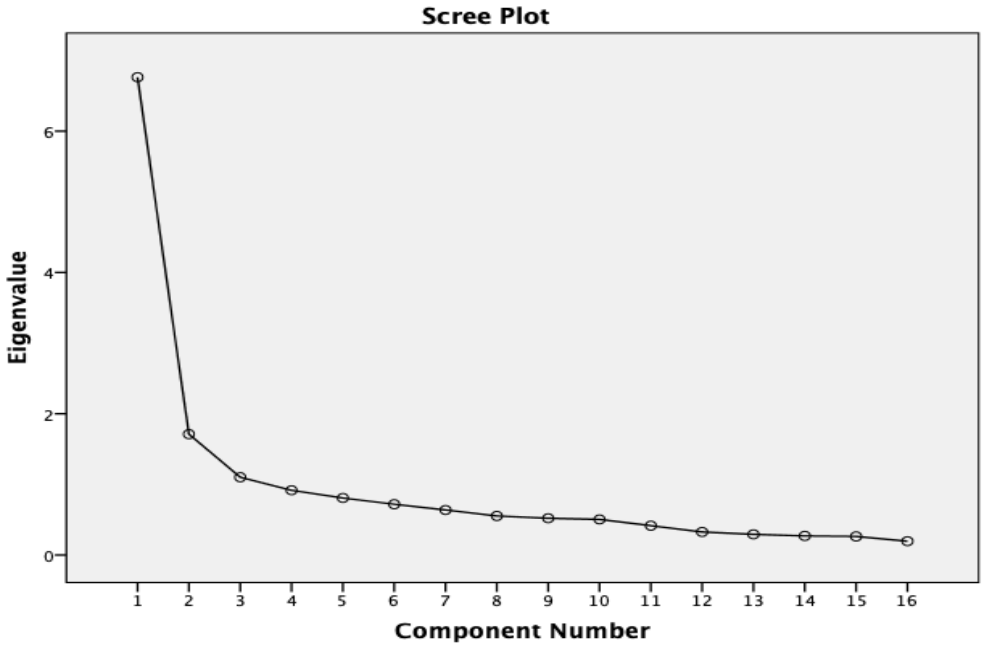


Figure 4.1 Scree plot of self-perceived employability scale

4.2.2.2 Human capital scale

In 8-item human capital scale (M = 25.90, SD = 5.224), the Kaier-Meyer-Olkin value was .828 and the value of Bartlett's test of sphericity reached the statistical significance. The Cronbach alpha was .882.

Table 4.3 Indicators of human capital scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.828
Bartlett's Test of Sphericity	Approx. Chi-Square	1287.050
	df	28
	Sig.	.000
Cronbach alpha		.882

The PCA revealed the presences of fixed three components, explaining 84.41% the variance of human capital. Having specified a three factors solution, each component represented 55.35%, 18.02% and 11.05% respectively. However, the eigenvalues of the third component was less than 1, with .884. An inspection of the scree plot (Figure 4.2) indicated that it should be reasonable to have three components due to the fourth component was at where the shape of curve changed

the direction and become horizontal. According to Field's (2018) suggestions regarding how many factors should be kept, the third data point was on the left of the point of inflexion, so that it supposed to in line with theoretical expectation.

The items loading on the first component referred to one's job market knowledge, indicating the degree of one's possessed general knowledge about the job market and employment trends. The items loading on the second component was regarding to one's possessed occupation specific knowledge and competencies. The items loading on the last component was related to individual's possessed skills and competencies that are relevant for a broad range of occupations. The results of factor loading were consistent with the interpretation of the original scale of Hirschi *et al.* (2017).

Table 4.4 Pattern matrix of human capital scale

Item	Component 1	Component 2	Component 3
HC6	.963		
HC5	.961		
HC4	.862		
HC2		.885	
HC1		.883	
HC3		.873	
HC7			.917
HC8			.893

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 5 iterations.

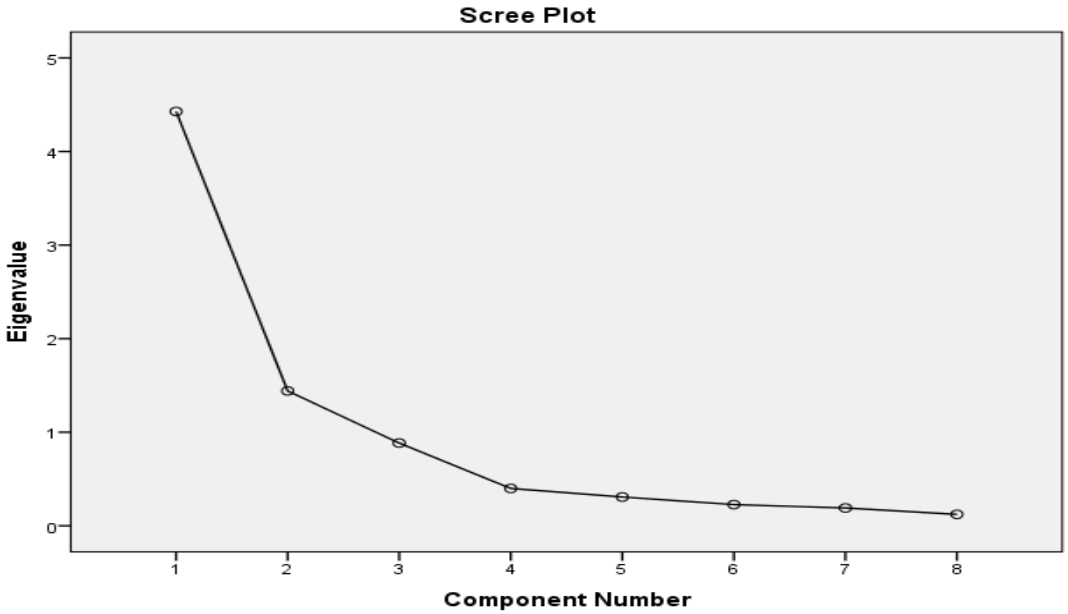


Figure 4.2 Scree plot of human capital scale

4.2.2.3 Social capital scale

In 7-item social capital scale (M =22.94, SD = 5.561), the KMO was .886 and Bartlett's of sphericity was significant ($p < .001$). The internal consistency of social capital scale was .914.

Table 4.5 Indicators of social capital scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.886
Bartlett's Test of Sphericity	Approx. Chi-Square	1073.804
	df	21
	Sig.	.000
Cronbach alpha		.914

Having the specified two-factor solution, each component accounted for, 66.19% and 10.75% of the variance respectively. However, the PCA revealed the presence of only one component with eigenvalues exceeding 1. An inspection of the scree plot (Figure 4.3) indicated there should reasonably be two components included. Although the rotation converged in 9 iterations with PCA solution, there were found a much stronger loadings on the component 2 than component 1. The

items loading on the first component was related to one' received career related support from other people. The items loading on the second component represented networking, which referred to the extent to which one's social contacts are built, maintained and utilised to promote career development. The results confirmed the structure of the data that was consistent with theoretical expectation.

Table 4.6 Pattern matrix of social capital scale

Item	Component1	Component 2
SC2	.988	
SC1	.886	
SC3	.717	
SC 5		.978
SC6		.850
SC7	.330	.571
SC4	.440	.457

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 9 iterations.

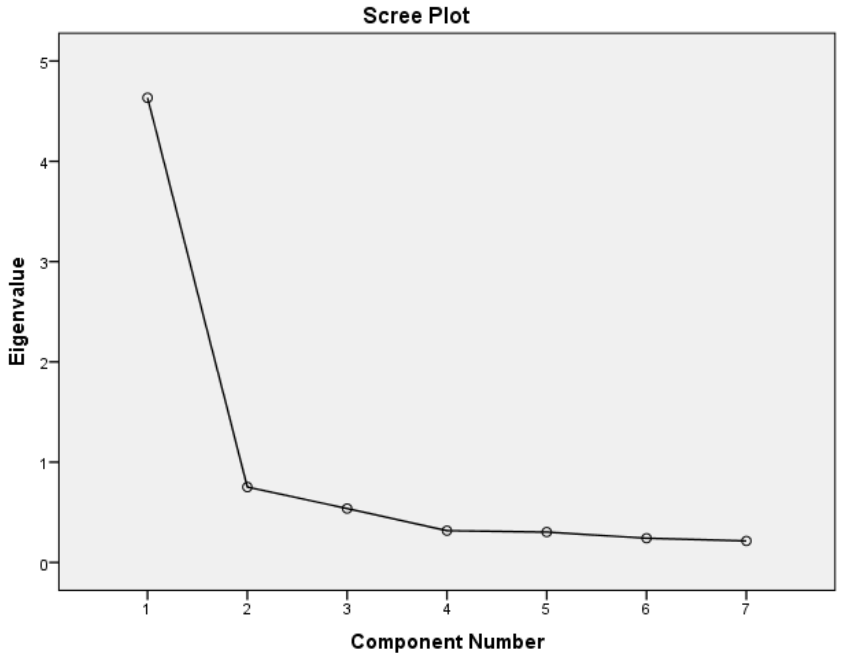


Figure 4.3 Scree plot of social capital scale

4.2.2.4 Identity capital scale

In 7-item identity capital scale (M =26.24, SD = 5.652), the KMO was .834 and Bartlett's of sphericity was significant ($p < .001$). The Cronbach alpha in this study was .872, suggesting the data revealed a good internal consistency with the data.

Table 4.7 Inidcators of identity capital scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.834
Bartlett's Test of Sphericity	Approx. Chi-Square	944.475
	df	28
	Sig.	.000
Cronbach alpha		.872

The PCA revealed the presence of fixed two components with eigenvalues exceeding 1, explaining a total of 67.93% of the variance. The presence of two components could explain 53.02% and 14.92% of the variance respectively. There were 7 iteration converged through rotation. However, it could be found in pattern matrix (Table 4.8) that there were a much stronger loading on component 1 than component 2. The first component related principally to one's exploration of inside self and external labour market. The second component drew one item from the exploration of inside self and the items from clarity scale, assessing whether individual has a clear self-concept. The results was almost consistent with the structure of the data of original scales (Stumpf *et al*., 1983; Dobrow and Higgins, 2005).

Table 4.8 Pattern matrix of identity capital scale

Item	component 1	component 2
IC1	.914	
IC2	.859	
IC3	.786	
IC4	.545	.372
IC5	.505	.352
IC6		.925
IC7		.920
IC8		.597
Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.[a] (a Rotation converged in 7 iterations.)		

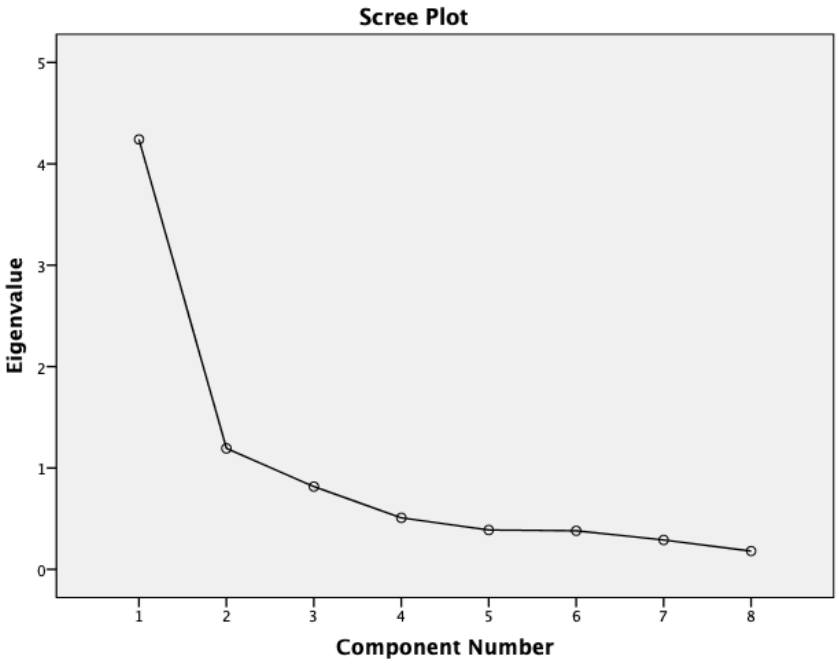


Figure 4.4 Scree plot of identity capital

4.2.2.5 Psychological capital scale

In 8-item psychological capital scale (M = 26.76, SD = 5.594), the KMO was .867 and Bartlett's of sphericity was significant ($p < .001$). The Cronbach alpha for psychological capital scale was .881.

Table 4.9 Indicators of psychological capital scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.867
Bartlett's Test of Sphericity	Approx. Chi-Square	861.860
	df	28
	Sig.	.000
Cronbach alpha		.881

Having specified two components solution, the two components accounted for a total 66.91% of the variance, with component 1 contributing 54.97% and component 2 contributing 11.94%. However, the PCA revealed the eigenvalues of component 2 was less than 1, with .955. An inspection the scree plot (Figure 4.5) indicated the point of inflexion was at the third data point, indicating that the scale should reasonably have two components to be extracted. The first component related to one's proactive personality could 'scan for opportunities, show initiative, take action, and persevere until they reach closure by bringing about changes' (Bateman and Crant,

1993, p.105). The second component represented one resilience, which showed how individual could endure and withstand the potential pressures and disruptions in their early stage of job search. The interpretation of two components was consistent with theoretical expectation.

Table 4.10 Pattern matrix of psychological capital

item	Component 1	Component 2
PC5	.859	
PC8	.850	
PC7	.832	
PC6	.642	
PC2		.947
PC1		.862
PC3		.631
PC4		.570

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.[a]
a. Rotation converged in 7 iterations.

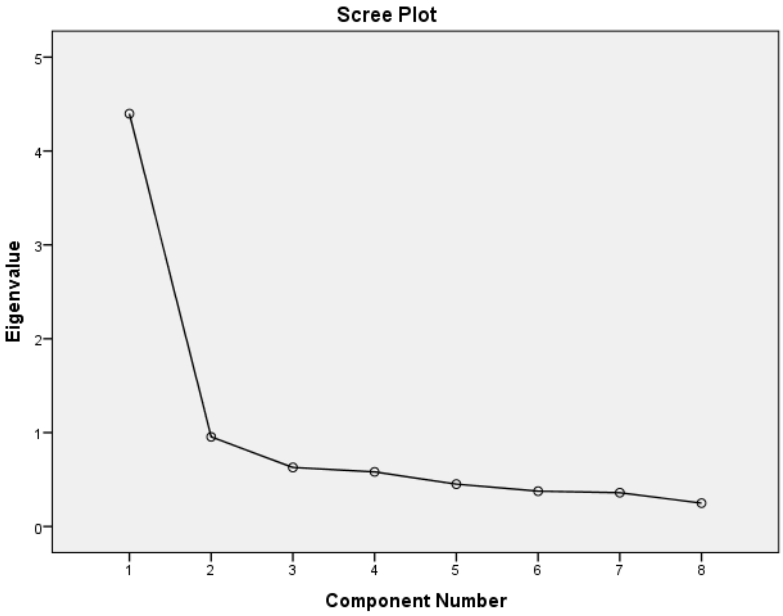


Figure 4.5 Scree plot of psychological capital scale

4.2.2.6 The summary of PCA results

The results of PCA and reliability analysis suggested that the items rotated the components in each scale was consistent with the interpretation of original scales (Rothwell *et al*., 2008; Rothwell *et al*., 2009; Hirschi *et al*., 2017; Stumpf *et al*., 1983; Dobrow and Higgins, 2005; Luthans *et al*., 2007; Bateman and Crant, 1993) and also indicated the good internal consistency in the current study. However, the factors retained did not meet the criterion of Kaiser's in some cases (e.g. human capital, social capital, psychological capital), which means there was the factor with the eigenvalues lower than 1. As recommended by Field (2018, p.790), 'if the sample size is greater than 200 use a scree plot'. In addition, critic argued that the rule of eigenvalues greater than 1 always severely overestimated the number of factors to retain (Rothwell, *et al*., 2008). As such, IBM SPSS statistics applied the Kaiser's criterion to extract factors by default. Thereby the scree plots thrown up a different numbers of factors to extract in the current study. As this process was driven by confirmatory factor analysis, and the eigenvalues were greater than 0.7 (the lowest eigenvalues in human capital was .884; the lowest eigenvalues in social capital was .752; the lowest eigenvalues in psychological capital was .955), the analysis specifying the number showed on scree plot in each case.

4.2.1 Results of demographic variables

There were 234 useable questionnaires. Table 4.11 outlined the breakdown of 234 participant data by demographic variables.

The majority of sample aged around 20 to 30, which was compatible with the results from previous study (Academic Degree Committee of the State Council, 2010). The proportion of sample who came from the eastern region was relatively high (76.5%), which might be closely related to the area where the target university is located, the economic and social development, and as well as the student source structure. Consistent with the results of previous study (Academic Degree Committee of the State Council, 2010), the majority of sample's parents' highest educational level dominated at middle school level (26.9%) and high school level (25.6%). In similar, sample's parents who were the manual workers still occupied the largest proportions of the types of occupation, with 12.4% of fathers were workers and 32.5% were farmers; and with 10.7% of mothers were workers and 34.2% were farmers. In addition, the large majority of students indicated their intention to stay within academia with 73.9%, a further 26.1% identified that they intended to work in an enterprise or a research institute or another location (i.e. government, go abroad and others) that has been all classified into a group named 'outside of academia'. With respect to prior work

experience (excluded internship), there were 59.8% of participants indicated that they have always been a student.

Table 4.11 Results of demographic variables

Variables	**Groups**	**Number**	**Percentage**
Gender (N =234)	Male	94	40.2%
	Female	140	59.8%
Age (N = 234)	20-30	183	78.2%
	31-40	47	20.1%
	41-50	2	0.9%
	over 50	2	0.9%
Geographical location (N = 234)	East	179	76.5%
	Middle	32	13.7%
	West	20	8.5%
Whether study STEM-related subject (N = 234)	STEM-related subject	67	28.6%
	None STEM-related subject	165	70.5%
The stage of doctoral study (N = 234)	1st year	79	33.8%
	2nd year	61	26.1%
	3rd year	51	21.8%
	4th year and over	43	18.4%
Whether have prior work experience (N = 234)	Yes	94	40.2%
	No	140	59.8%
(RC) Desired future jobs (N = 234)	Stay in academia	173	73.9%
	Outside of academia	61	26.1%
(RC) Parents' highest education level (N = 234)	Primary school and below	36	15.4%
	Middle school	63	26.9%
	High school (includes vocational school)	60	25.6%
	College	26	11.1%
	Bachelor and above	49	20.9%
Father's occupation (N = 234)	Governmental and enterprise officers	33	14.1%
	Specialists (includes teachers, doctors, engineers, writers and etc.)	33	14.1%
		21	9.0%
	General officers (refers to the people who works in general affairs)	29	12.4%
		76	32.5%
	Workers	33	14.1%
	Farmers	9	3.8%
	Self-employed		
	Others		

Mother's occupation (N = 234)	Governmental and enterprise officers	12	5.1%
	Specialists (includes teachers, doctors, engineers, writers and etc.)	35	15.0%
	General officers (refers to the people who works in general affairs)	33	14.1%
	Workers	25	10.7%
	Farmers	80	34.2%
	Self-employed	33	14.1%
	Others	16	6.8%

4.2.3 Ascertain the relationships and differences within self-perceived employability scale

4.2.3.1 The descriptive framework of self-perceived employability scale

As can be seen in Table 4.12, participants were generally perceived positively about their self-perceived employability, internal and external aspect of self-perceived employability with a slight negative skew. This is common in social science literature that having scores are skewed (Pallant, 2013, p.66).

Table 4.12 Descriptive data of self-perceived employability scale

	Mini-mum	Maxi-mum	Mean	Std. Deviation	Median	Mode	Skewness	Std. Error	Kurtosis	Std. Error
Total	16	79	53.97	9.925	54.48	55	-.550	.159	.992	.317
External	9	45	31.68	5.855	32.30	34	-.628	.159	.875	.317
Internal	7	35	22.29	5.171	22.09	22	-.216	.159	.527	.317

In addition, this study found that there was a strong and positive correlation ($r = .619$, $p < .001$) between the external and internal aspect of employability related to the sample. However, the data was shown that participants appeared to have more confidence on their external aspect of employability rather than the internal aspect ($t(466) = 5.222$, $p < .001$, one-tailed).

4.2.3.2 Ascertain the differences within self-perceived employability scale

The preliminary analysis did not find out any significant differences in the mean score of self-perceived employability with two-category demographic variables (i.e. gender, whether study

STEM-related subject and whether have prior work experience). Interestingly, split by dimension of employability, there was a statistically significant differences between participants who had prior work experience (N = 94) and who had none prior work experience (N = 140) on the mean score of internal aspect of employability.

Whether have prior work experience

Internal employability scores: who had work experience (M = 23.23, SD = 5.566) and who had none work experience (M = 21.66, SD = 4.805; t (232) = 2.308, p = .022, two-tailed). The magnitude of the differences in the means (mean difference = 1.577, 95% CI: .231 to 2.923) was small (eta squared = .02). Thus, the participants who had prior work experience scored significantly higher internal employability than those who had none prior work experience.

In addition, the one-way ANOVA was conducted to ascertain whether the level of sample's self-perceived employability, internal and external aspects of self-perceived employability were impacted by other demographic variables. There was a statistically significant difference at the p < .05 level in self-perceived scores for the groups of three demographic variables, namely parent's education level, father's occupation and mother's occupation. No differences were found in the score of self-perceived employability in the groups across other demographic variables.

Parents' education level

As can be seen in Table 4.11, the parents' education level consisted of 5 groups（Group 1: primary school and below; Group 2: middle school; Group 3: high school (include vocational school; Group 4: college; Group 5: bachelor and above). There was a statistically significant difference at the p < .05 level in self-perceived employability scores for the five parents' education level groups: F（4，229）= 3.822, p = .005, and with the resulting eta squared value of .06, indicating the difference in the mean score between education level groups was medium. The value of eta squared was classified by Cohen's *et al*. (2007) with .01 as a small effect, .06 as a medium effect and .14 as a large effect. The Post hoc comparison using Games-Howell test indicated the mean score for Group 2 (M = 50.83, SD =9.452) was significantly different from Group 3 (M = 55.55, SD = 8.765). In addition, it was also found that the mean score for Group 2 (M = 50.83, SD = 9.452) was significant from Group 5 (M = 57.45, SD = 10.512). There was no statistically significant difference found between other groups in education level.

Further analysis was undertaken on exploring the differences in the mean scores on both internal and external employability across the parent's education level groups. It was found a statistically significant difference in the mean score of external employability across five groups: F (4, 229) = 3.593, p = .007. The eta squared value was 0.06, indicating a medium effect in Cohen's *et al*. (2006) term. The Post hoc comparison using Games-Howell test indicated the mean score for Group 2 (M = 29.90, SD = 5.929) was significantly different from Group 5 (M = 33.76, SD = 6.149). Regarding to internal employability, despite reaching statistical significance: F (4, 229) = .040, the actual difference in mean scores between groups was quite small. The effect size, calculating using eta squared, was 0.04. Post hoc comparison using Games-Howell test indicated the mean score for Group 2 (M = 20.92, SD = 4.520) was significantly different from Group 5 (M = 23.69, SD = 5.153).

Father's occupation

Both father and mother's occupation include 7 groups (Group 1: governmental and enterprise officers; Group 2: specialists (include teachers, doctors, engineering, writer etc.); Group 3: general officers (refer to the people who works in general affairs); Group 4: workers; Group 5: farmers; Group 6: self-employed; Group 7: others).

It was found a statistically significant difference for 7 father's occupation groups: F (6, 227) = 2.734，p = .014. The effect size was medium (partial eta squared = .07). Post-hoc comparison using the Games-Howell test indicated the mean score for Group 1（M = 58.94, SD = 11.034） was significantly different from Group 5 (M = 51.61, SD = 9.756). The result of multiple comparison did not discover the statistically significant difference in the mean score of self-perceived employability between other groups of father's occupation.

Further analysis was undertaken on exploring the differences in the mean scores on both internal and external employability across the parent's occupation groups. It was only found a statistically significant difference in mean score of external employability across seven father's occupation groups: F (6,227) = 2.667, p = .016. The resulting eta squared value of 0.07, indicating a medium effect. Post-hoc comparison using the Game-Howell indicated the mean score for Group 1 (M =34.79, SD = 6.219) was significant from Group 5 (M = 30.62, SD = 5.879).

Mother's occupation

There was a statistically significance difference for 7 mother's occupation groups: F (6, 227) = 2.172, p = .047. Despite reaching the statistical significance, the actual difference in the mean score

between groups was small, with the eta squared value of .05. Post-hoc comparison using the Game-Howell indicated the mean score for Group 1 (M = 60.00, SD = 7.435) was significant from Group 5 (M = 51.95, SD = 9.804). No other statistically significant difference was found between the groups of mother's occupation.

4.2.4 Ascertain the relationships and differences within graduate capital scale

4.2.4.1 The descriptive framework of graduate capital scale

The preliminary analysis suggested the violation of the assumption of normality. The actual shape Q-Q plot distribution for each capital scores in each case appeared to be reasonably normally distributed. As can be seen from Table 4.13 that participants were generally positive about most aspects of their capitals and its dimensions with a slight negative skew. According to Pallant (2013, p.66), this is common in social sciences literature that scale reflects the underlying nature of the construct being measured.

Table 4.13 The descriptive data of each capital scale (either subscale)

	Minimum	Maximum	Mean	Std. Deviation	Median	Mode	Skewness	Std. Error	Kurtosis	Std. Error
Human capital	8	40	25.90	5.224	26.16	24	-.460	.159	.660	.317
Occupation expertise knowledge	3	15	10.74	2.295	11.00	12	-.402	.159	.242	.317
Job market knowledge	3	15	9.02	2.533	9.13	9	-.293	.159	.009	.317
Soft skills	2	10	6.14	1.634	6.25	6	-.467	.159	.177	.317
Social capital	7	35	22.94	5.561	22.73	21	-.087	.159	-.070	.317
Career support	4	20	13.07	3.437	13.04	12	-.096	.159	-.164	.317
networking	3	15	9.87	2.521	9.91	9	-.169	.159	-.137	.317
Identity capital	12	40	26.24	5.652	26.31	24	-.053	.159	-.173	.317
Career exploration	6	30	19.35	4.395	19.16	18	-.119	.159	.081	.317
Career clarity	2	10	6.89	1.907	7.06	8	-.387	.159	-.318	.317
Psychological capital	10	40	26.76	5.594	26.96	24	-.343	.159	.285	.317
resilience	3	15	9.71	2.448	9.66	9	-.182	.159	-.055	.317
adaptability	5	25	17.05	3.664	17.22	20	-.429	.159	.499	.317

4.2.4.2 Ascertain the differences within graduate capital scale

Independent T-test was used to examine whether there were significant differences between the demographic variables (with two categories) and each form of capital. The investigation indicated that there was a statistically significant difference has been found between males (N = 94) and females (N = 140) on the mean score of forms of capital, namely human capital, social capital and psychological capital.

In addition, it was found a statistically significant differences reported between participants who had prior work experience (N = 94) and who had none prior work experience (N = 140) on the mean score of forms of capital, namely human capital, identity capital and psychological capital.

Gender

There were significant differences between males and females on the mean score of following variables. In all cases, males scored higher than females.

- Human capital scores: males (M = 26.97, SD = 4.47) and females (M = 25.18, SD = 5.58; t (232) = 2.60, p = .010, two-tailed. The magnitude of the differences in the means (mean difference = 1.790, 95% CI: .434 to 3.145) was small (eta squared = .03).

- Social capital scores: males (M = 24.15, SD = 4.99) and females (M = 22.13, SD = 5.79; t (232) = 2.76, p = .006, two-tailed). The magnitude of the differences in the means (mean difference = 2.02, 95% CI: .580 to 3.461) was small (eta squared = .03).

- Psychological capital scores: males (M = 27.83, SD = 5.67) and females (M = 26.04, SD = 5.44; t (232) = 2.43, p = .016, two-tailed). The magnitude of the differences in the means (mean difference = 1.794, 95% CI: .340 to 3.249) was small (eta squared = .02).

Whether have prior work experience

There were significant differences between whether participants had prior work experience on the mean score of following variables. In all cases, participants who had prior work experience scored higher than those who had none prior work experience.

- Human capital scores: who had prior work experience (M = 26.86, SD = 5.21) and who had none prior work experience (M = 25.25, SD = 5.15; t (232) = 2.34, p = .02, two-tailed). The magnitude of the differences in the means (mean difference = 1.61, 95% CI: .252 to 2.971) was small (eta squared = .02).

- Identity capital scores: who had prior work experience (M = 27.16, SD = 5.38) and who had none prior work experience (M = 25.61, SD = 5.77; t (232) = 2.07, p = .04, two-tailed). The magnitude of the differences in the means (mean difference = 1.55, 95% CI: .071 to 3.020) was small (eta squared = .02).

- Psychological capital scores: who had prior work experience (M = 27.91, SD = 5.63) and who had none prior work experience (M = 25.98, SD = 5.46; t (232) = 2.29, p = .023, two-tailed). The magnitude of the differences in the means (mean difference = 5.673, 95% CI: .784 to 10.563) was small (eta squared = .02).

In addition, the one-way ANOVA was conducted to test whether there was a difference in the mean scores on the each form of capital across the groups of demographic variables. The results revealed that parent's education level and father's occupation had the impact on the levels of participants' identity capital. No other differences were found between other forms of capital and demographic variables.

Parents' education level

The parents' education level consisted of 5 groups（Group 1: primary school and below; Group 2: middle school; Group 3: high school (include vocational school; Group 4: college; Group 5: bachelor and above). There was a statistically significant difference at the $p < .05$ level in identity capital scores for the five education level groups: $F (4, 229) = 3.196$, $p = .014$. The resulting eta squared value is .05, which is regarded as a small effect (Cohen *et al*., 2006). The Post hoc comparison using Games-Howell tested indicated the mean for Group 2 (M = 25.54, SD = 5.573) was significantly different from Group 5 (M = 28.29, SD = 5.523). There was no statistically significant difference between other groups.

Father's occupation

Father's occupation included 7 groups (Group 1: governmental and enterprise officers; Group 2: specialists (include teachers, doctors, engineering, writer etc.); Group 3: general officers (refer to

the people who works in general affairs); Group 4: workers; Group 5: farmers; Group 6: self-employed; Group 7: others). There was a statistically significant difference at the $p < .05$ level in identity capital scores for the seven father's occupation groups: $F (6, 227) = 3.196$, $p = .017$. The resulting eta squared value is .07, which is regarded as a medium effect (Cohen *et al*., 2007). The Post hoc comparison using Games-Howell tested indicated the mean for Group 2 ($M = 28.45$, $SD = 5.316$) was significantly different from Group 4 ($M = 23.62$, $SD = 5.913$). There was no statistically significant difference between other occupation groups.

4.2.5 Ascertain the relationships and differences within demographic variables

In order to explore participants' self-perceived employability further, participants were asked the questions in relation to their desired future career pathway. 73.9% of participants suggested they would like to stay in the higher education institutions. This study was interested to explore whether there was an association between the preference of career pathway and the discipline participants studied.

The preliminary analysis revealed that the presence of the violation of chi-square assumption due to the tested variables (discipline and desired future job) have more than two categories and the number in some categories is far less than the others, which leaded to more than 20% of the cells have expected values less than 5. Thus, the chi-square test was generated from the procedure for a 2 by 2 table which consisted of two re-categorised variables (whether STEM related discipline and (RC) desired future job).

As can be seen in Table 4.14, a Chi-square test for independence indicated there was a significant association between the preference of future job and whether participants studied STEM-related subject, $\chi 2 (1, n = 232) = 17.58$, $p = .000$, phi = -.28. The phi coefficient value is considered nearly a medium effect in Cohen's *et al*. term (cited in Pallant, 2013, p.228). In particular, the data was shown participants who studied in none STEM-related subject indicated the stronger intention to stay within higher education domain than those who studied STEM-related subject.

Table 4.14 Chi-square test

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	17.577[a]	1	.000		
Continuity Correction[b]	16.217	1	.000		
Likelihood Ratio	16.612	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	17.501	1	.000		
N of Valid Cases	232				
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 17.33.					
b. Computed only for a 2x2 table					

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	-.275	.000
	Cramer's V	.275	.000
N of Valid Cases		232	

4.2.6 Ascertain the relationships between scales

To better understand the relationships between self-perceived employability and forms of capital, the correlations analysis were conducted to identify the relationships between each scale. Due to the non-normality nature of the score of each scale, the relationship was investigated by using Spearman rho correlation coefficient. The correlation results (Table 4.15) indicated that there were the strong and positive correlations between self-perceived employability and each form of capital, which means participants who had the higher level of forms of capital might reasonably have the higher level of self-perceived employability. In addition, the data was shown the strong and positive correlations between each form of capital, which validated Tomlinson's (2017a) argument associated with the interactive and mutual influence of forms of capital on one's employability. Of note here was the strength of relationship between social capital and psychological capital was medium, with r = .47.

Table 4.15 Spearman's rho correlations between measures of self-perceived employability and each form of capital

Scale	1	2	3	4
1.Self-perceived employability	-			
2.Human capital	.621**	-		
3.Social capital	.581**	.626**	-	
4. Identity capital	.537**	.689**	.685**	-
5. Psychological capital	.503**	.624**	.470**	.636**
** $p < .001$ (2-tailed).				

4.3 Testing the fit of hypothesised model via confirmatory factor analysis (CFA)

The preliminary analysis has shown the presence of factor loading and relationships between the scales. The CFA was conducted to ascertain the model fit with the survey data, which consisted of a one factor structure and second-order structure by using the AMOS (Arbuckle, 2008). In the first, the CFA had been used to test the model fit of each case, but the results had indicate the presence of very poor model fit. Therefore, the CFA analysis has taken all scales in the one model.

4.3.1 Method and indicators in CFA

The maximum likelihood estimation method (ML) with robust standard errors was used to confirm the dimensionality and structure of the hypothesised model. A number of 'goodness-of-fit' statistics were used to check the model fit. The value of $\chi 2$ / DF of 3 or less; above .90 for the Comparative Fit Index (CFI), Goodness-of-Fit Index (GFI), Normed Fit Index (NFI) and Tucker-Lewis Index (TLI) suggested the accepted fit; value of 0.05 or less for the Root Mean Square Error of Approximation (RMSEA) and a non-significant ($p > 0.05$) p value (Byrne, 2010).

4.3.2 Results of model fit

The **CFA model 1** (Figure 4.6) reflected the hypothesised structure that consisted of 5 factors. They were self-perceived employability, human capital, social capital, identity capital and psychological capital. The five factors were inter-correlated by the two-headed arrows. There were 16 observed

items of self-perceived employability, 8 observed items of human capital, 7 observed items of social capital, 8 observed items of identity capital and 8 observed items of psychological capital. Each observed variable loaded on one and only one factor. Errors of measurement associated with each observed variable were uncorrelated.

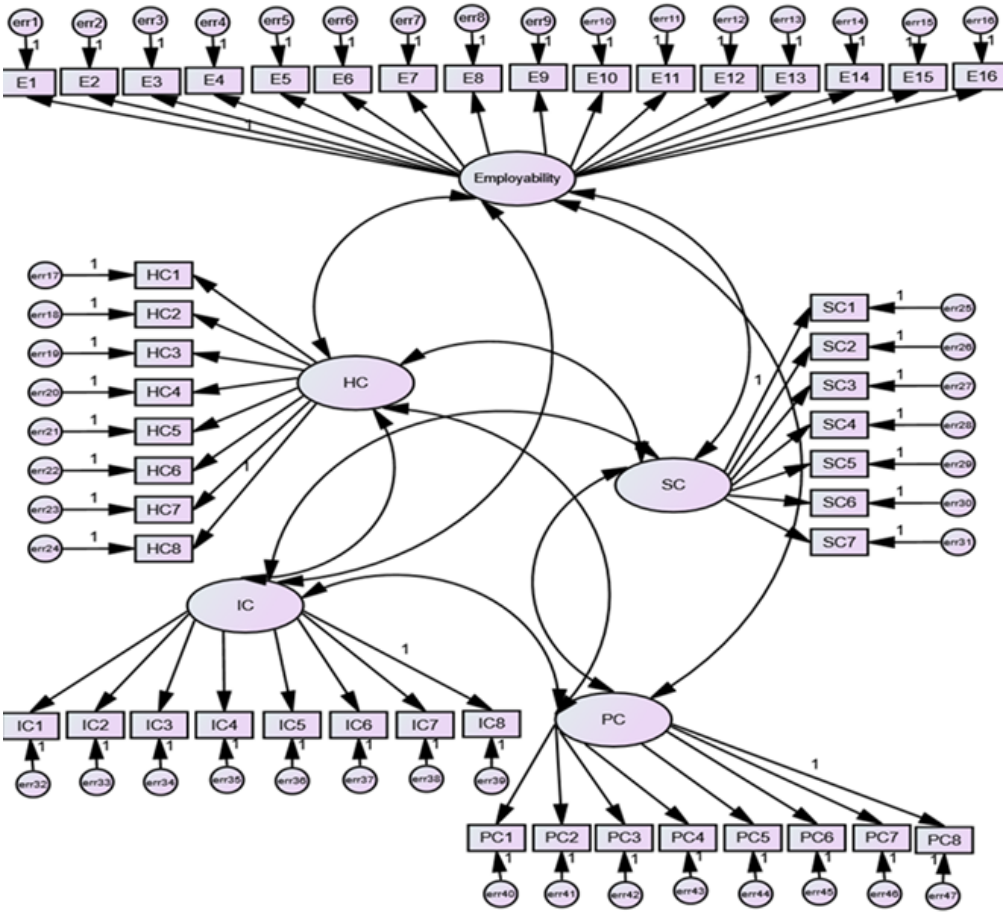


Figure 4.6 CFA model 1 with one factor structure

The **CFA model 2** (Figure 4.7) reflected the second-order factors structure, with each of the 11 factors (internal employability, external employability, occupational expertise, job market knowledge, soft skills, social career support, networking, career exploration, career clarity, resilience and adaptability) indicated by their respective items and each factor loading onto its related higher order dimension (self-perceived employability, human capital, social capital, identity capital and psychological capital), and with the five second-order factors freely correlated. Each

observed variable loaded on one and only one factor. Errors of measurement associated with each observed variable were uncorrelated.

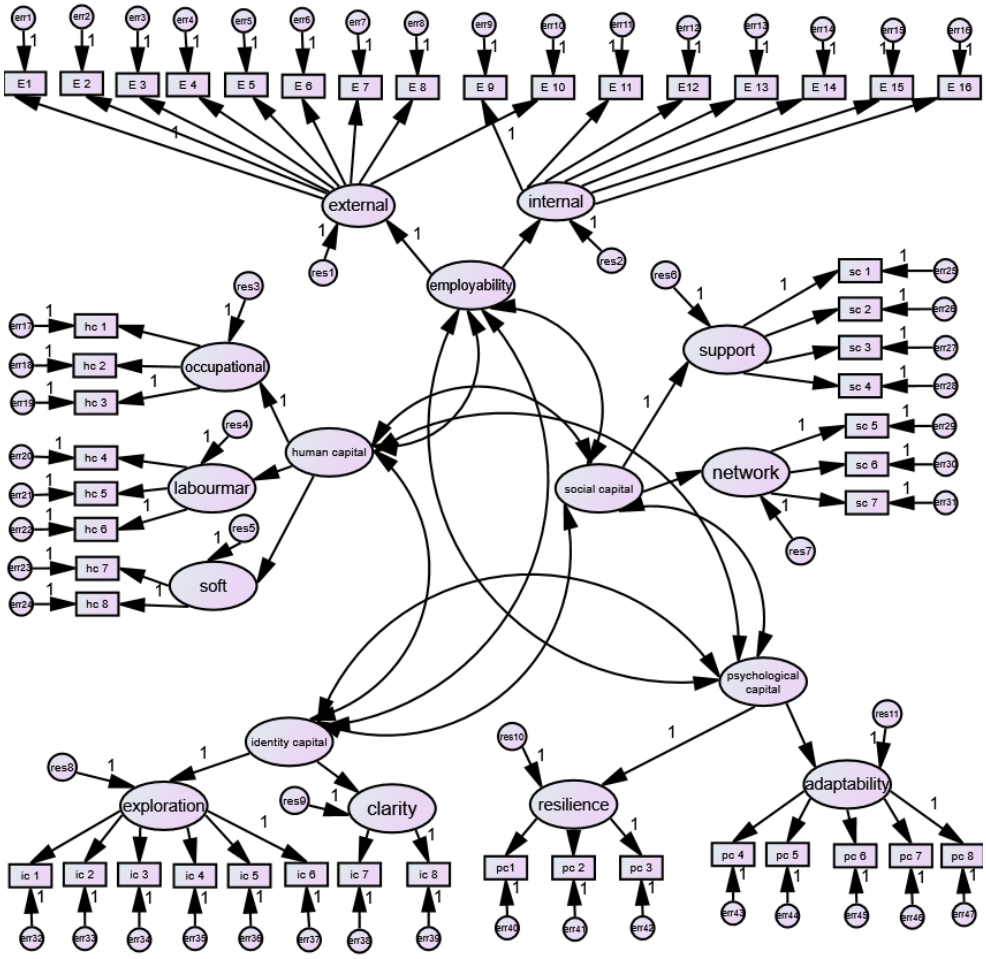


Figure 4.7 CFA model 2 with second-order factor structure

In **CFA model 1**, χ2 (234) = 3219.192, χ2 / DF = 3.144, p < .001, CFI = .701, GFI = .566, RMSEA = .096, NFI =.618, TLI = .684. In **CFA model 2**, χ2 (234) = 2283.619, χ2 / DF = 2.254, p < .001, CFI = .827, GFI = .669, RMSEA = .073, NFI =.729, TLI = .815. Accordingly, the value of χ2 / DF are more impacted by the sample size (Byrne, 2010). Though the value of RMSEA in **CFA model 2** is over 0.05, below or equal to 0.08 was also considered as the acceptable fit (Browne *et al*., 1993). Additionally, the closer the CFI value is to 1 indicated the better model fit. In sum, the fit of model 2 was shown a better

results by including the 11 first-order factors (namely internal employability, external employability, occupational expertise, job market knowledge, soft skills, social career support, networking, career exploration, career clarity, resilience and adaptability).

The **CFA model 3** (Figure 4.8) has been utilised the modification indices to add the covariance based upon the **CFA model 2**, but only between those which had conceptual sense had been added. For example, the item E5 'Employers specifically target this university in order to recruit individuals from my subject area(s)' and E6 'My university has an outstanding reputation in my field(s) of study' both referred to the reputation the university had in the field of subject study, the status and credibility of the subject study, so it showed a strong conceptual sense. In sum, error 5 and error 6, error 14 and error 16, error 32 and error 33 had been made justification of addition the covariance between each.

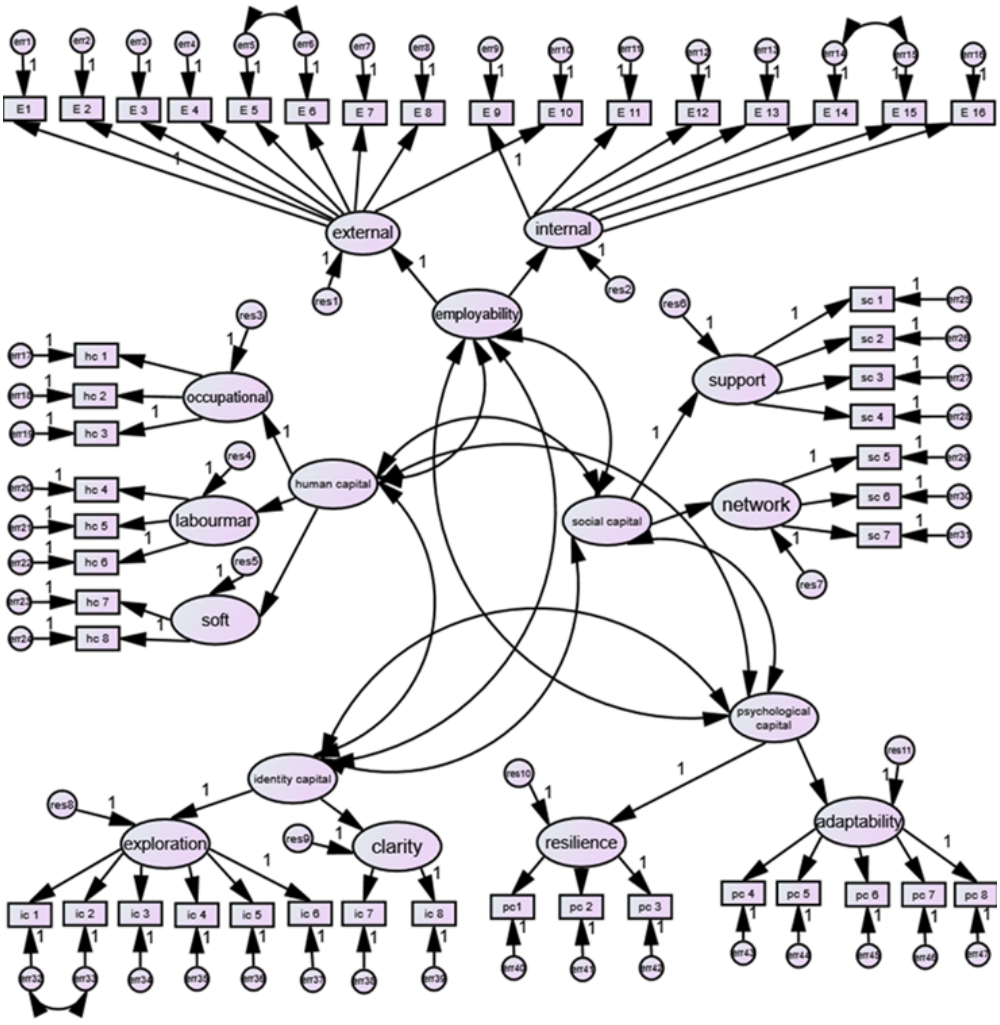


Figure 4.8 CFA model 3 with a second-order factor structure and adjustment

The final fit of **CFA model 3** results were: $\chi 2$ (234) = 2162.101, $\chi 2$ / DF = 2.141, $p < .001$, CFI = .843, GFI = .689, RMSEA = .70, NFI = .743, TLI = .832. The results of model fit indicated **model 3** did not reach the perfect fit with the data, but it was acceptable. It was shown in Table 4.16, most of the items in the survey had indicated fairly high levels of variance explained by the **CFA model 3**. The values in the standardised regression weight in CFA were on or above .516. Therefore, the non-normal distribution of the data might be explained the relative undesirable model fit in this study. The following Table 4.17 indicated the descriptive statistics in terms of skew and kurtosis of each item.

Table 4.16 Communalities (R^2 values) for 47 survey items

Item	Communality	Item	Communality	Item	Communality
E1	.399	HC5	.857	PC2	.682
E2	.635	HC6	.802	PC3	.562
E3	.652	HC7	.653	PC4	.607
E4	.609	HC8	.662	PC5	.636
E5	.633	SC1	.772	PC6	.627
E6	.693	SC2	.785	PC7	.566
E7	.434	SC3	.769	PC8	.703
E8	.592	SC4	.672		
E9	.661	SC5	.699		
E10	.549	SC6	.711		
E11	.659	SC7	.664		
E12	.756	IC1	.705		
E13	.729	IC2	.659		
E14	.651	IC3	.675		
E15	.750	IC4	.717		
E16	.577	IC5	.624		
HC1	.642	IC6	.582		
HC2	.734	IC7	.736		
HC3	.693	IC8	.759		
HC4	.835	PC1	.577		

Table 4.17 Assessment of normality of each item

Item	skew	c.r.	kurtosis	c.r.
PC3	-.114	-.715	-.534	-1.667
PC4	.130	.811	-.592	-1.849
PC5	-.627	-3.917	.259	.810
PC6	-.267	-1.666	.161	.504
PC7	-.143	-.895	-.290	-.906
PC8	-.498	-3.109	-.050	-.155
PC1	-.234	-1.464	-.154	-.482
PC2	.036	.222	-.344	-1.074
IC7	-.305	-1.903	-.487	-1.519
IC8	-.418	-2.609	-.207	-.645
IC1	-.014	-.089	-.332	-1.037
IC2	.048	.298	-.327	-1.020
IC3	-.430	-2.686	-.142	-.444
IC4	-.128	-.798	-.235	-.733
IC5	-.301	-1.880	-.420	-1.312
IC6	-.474	-2.957	-.263	-.822
SC7	.094	.587	-.345	-1.077
SC6	-.198	-1.234	-.366	-1.142
SC5	-.487	-3.041	.070	.218
SC4	-.373	-2.332	-.281	-.878
SC3	-.202	-1.263	-.231	-.722
SC2	-.185	-1.156	-.614	-1.917
SC1	-.112	-.698	-.205	-.641
HC7	-.265	-1.654	-.123	-.384
HC8	-.459	-2.864	-.122	-.380
HC4	-.240	-1.498	.200	.624
HC5	-.192	-1.196	-.073	-.227
HC6	-.263	-1.643	-.159	-.496
HC1	-.480	-2.996	.076	.237
HC2	-.398	-2.483	-.046	-.144
HC3	-.329	-2.057	-.025	-.079
E16	-.404	-2.520	-.377	-1.176
E15	-.176	-1.100	.131	.408
E14	-.282	-1.758	.095	.296
E13	-.106	-.660	.256	.800
E12	-.106	-.664	.138	.431
E11	-.218	-1.361	-.023	-.071
E10	-.883	-5.513	.330	1.029
E9	.053	.329	-.390	-1.218
E8	-.341	-2.129	-.348	-1.086
E7	-.372	-2.322	-.508	-1.587
E6	-.504	-3.146	-.193	-.601
E5	-.246	-1.535	-.158	-.493
E4	-.719	-4.491	.476	1.487
E3	-.158	-.988	-.187	-.584
E2	-.064	-.398	-.735	-2.296
E1	.052	.322	.004	.014

4.3.3 The summary of ascertaining the model fit

Though the resulting **CFA model 3** did not reach the perfect fit, it revealed the best fit model of the data, which also showed a reasonable good match with components in each case extracted from the PCA results. The reason of causing the data estimation problem of the CFA could be the non-normality nature of the data, especially when used the ML estimation approach. It was therefore decided to use the **CFA model 3** as the best to carry forward the data analysis because it revealed the ability to inform the greater information with the survey data.

4.4 Predictors of self-perceived employability

The final research question was to explore 'what factors might influence Chinese doctoral students' self-perceived employability?'

The standard multiple regression was performed to assess the impact of a number of independent variables on employability derived from sample's perceptions. To better understand the reason why CFA indicating a second-order factor were able to inform the greater information with survey data, and the impact of each predictor on self-perceived employability or either its sub-scales, four regression models were performed.

4.4.1 Regression model 1

Dependent variable:

- Total score on the self-perceived employability

Independent variable:

- Demographic variables (gender, age, geographical location, whether STEM-related discipline, the stage of study, the mode of study, whether have work experience, desired future job, parent's education level, father's occupation, mother's occupation)
- Total score on the human capital
- Total score on the social capital
- Total score on the identity capital
- Total score on the psychological capital

Preliminary analysis were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity problems. The outputs (Table 4.18) of the first

regression model indicated that sample's self-perceived employability was significantly predicated by three independent variables, namely human capital, social capital and psychological capital ($p < 0.01$). The model as a whole accounted for 50 percent of the variance of self-perceived employability. In particular, human capital, social capital, psychological capital made significant unique contributions to the predication of respondents' self-perceived employability. Although after controlling for other factors, identity capital, parent's education level, father's occupation, mother's occupation could not significantly predict respondents' self-perceived employability.

Table 4.18 Outputs of regression model 1

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.718[a]	.515	.500	7.019

a. Predicators: (Constant), parent's education level, father's occupation, mother's occupation, total human capital, total social capital, total identity capital, total psychological capital.

b. Dependent variable: total self-perceived employability

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11816.092	7	1688.013	34.258	.000[b]
	Residual	11135.754	226	49.273		
	Total	22951.846	233			

a. Dependent variable: total self-perceived employability

b. Predicators: (Constant), parent's education level, father's occupation, mother's occupation, total human capital, total social capital, total identity capital, total psychological capital.

Coefficients [a]

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficient Beta	t	Sig.
1	(Constant)	17.039	4.025		4.233	.000
	Total human capital	.561	.138	.295	4.057	.000
	Total social capital	.596	.127	.334	4.702	.000
	Total identity capital	-.111	.138	-.063	-.804	.422
	Total psychological capital	.449	.115	.253	3.888	.000
	Parent's education level	.231	.518	.032	.445	.656
	Father's occupation	-.177	.402	-.032	-.441	.660
	Mother's occupation	-.079	.419	-.013	-.190	.850

a. Dependent variable: total self-perceived employability

4.4.2 Regression model 2

The first regression investigation indicated that three demographic variables and forms of capital were able to predict the employability derived from the sample's perceptions. Further analysis were undertaken on the dimension level of each form of capital, due to the results of CFA had suggested the model at the dimension level was best fitting the dataset and of that model might be best to carry forward for further exploration.

Dependent variable:

- Total score on the self-perceived employability

Independent variable:

- Parent's education level, father's occupation, mother's occupation
- Total score on the occupational expertise knowledge, job market knowledge and soft skills
- Total score on the career support and networking
- Total score on the career exploration and career clarity
- Total score on the resilience and adaptability

Preliminary analysis were undertaken to check the value of tolerance and VIF to ensure the model without the multicollinearity problems. The outputs of model 2 (Table 4.19) revealed that the entire model containing three predicators reached statistically significance level ($p < 0.05$). The model as a whole can explain 55.6 percent of the variance of self-perceived employability. As shown in the coefficient output, only three of the independent variables made a unique statistically significant contribution to the model (occupational expertise knowledge, networking and adaptability). The strongest predicator of reporting employability derived from the sample's perceptions was the occupational expertise knowledge. Although after controlling for other factors, job market knowledge, soft skills, career support, career exploration, career identity, resilience, parent's education level, father's occupation, mother's occupation could not significantly predict respondents' self-perceived employability.

In sum, the second regression model indicated the higher explained variance of self-perceived employability when compared with the first regression model, which might be because using constructs at the dimension level showed better ability to inform the perceptions of self-perceived employability. Although regression model 2 has better model fit in explaining Chinese doctoral

students' self-perceived employability compared to regression model 1, the improvement of the goodness of the fit is very small.

Table 4.19 Outputs of regression model 2

Model Summary [b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.761[a]	.579	.556	6.613
a. Predicators: (Constant), parent's education level, father's occupation, mother's occupation, occupational expertise knowledge, job market knowledge, soft skills, career support, networking, career exploration, career clarity, resilience and adaptability.				
b. Dependent variable: total self-perceived employability				

ANOVA [a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	13285.680	12	1107.140	25.313	.000[b]
	Residual	9666.167	221	43.738		
	Total	22951.846	233			
a. Dependent variable: total self-perceived employability						
b. Predicators: (Constant), parent's education level, father's occupation, mother's occupation, occupational expertise knowledge, job market knowledge, soft skills, career support, networking, career exploration, career clarity, resilience and adaptability.						

Coefficients [a]						
Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficient Beta	t	Sig.
2	(Constant)	17.855	3.810		4.686	.000
	Occupational expertise knowledge	1.508	.279	.349	5.401	.000
	Job market knowledge	.225	.240	.058	.940	.348
	Soft skills	.003	.362	.001	.010	.992
	Career support	.067	.202	.023	.329	.743
	Networking	1.177	.309	.299	3.814	.000
	Career exploration	-.122	.166	-.054	-.735	.463
	Career clarity	.129	.304	.025	.426	.671
	Resilience	.084	.257	.021	.326	.744
	Adaptability	.493	.197	.182	2.509	.013
	Parent's education level	-.119	.497	-.016	-.238	.812
	Father's occupation	-.289	.387	-.052	-.747	.456
	Mother's occupation	-.206	.400	-.034	-.514	.608
a. Dependent variable: total self-perceived employability						

4.4.3 Regression model 3

To better understand how well each form of capital and their dimensional constructs were able to predict the internal and external facets of self-perceived employability and investigated the impact further, the final exploration was beginning with splitting the internal and external dimensions of self-perceived employability, which based upon the results driven from preliminary analysis and CFA.

Dependent variable:

- Total score on the external employability

Independent variable:

- Parent's education level, father's occupation, mother's occupation
- Total score on the occupational expertise knowledge, job market knowledge and soft skills
- Total score on the career support and networking
- Total score on the career exploration and career clarity
- Total score on the resilience and adaptability

The outputs of regression model 3 (Table 4.20) indicated that the full model containing three predicators was statistically significant ($p < 0.05$). The model as a whole can explain 44.8 percent of the variance of external aspect of self-perceived employability. As shown in the output of coefficient, only three of the independent variables (occupational expertise knowledge, networking and adaptability) made a unique statistically significant contribution to the predication of external employability. Although after controlling for other factors, job market knowledge, soft skills, career support, career exploration, career clarity, resilience, parent's education level, father's occupation, mother's occupation could not significantly predict respondents' self-perceived employability

Table 4.20 The outputs of regression 3 (external)

Model Summary [b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	.691[a]	.477	.448	4.348
a. Predicators: (Constant), parent's education level, father's occupation, mother's occupation, occupational expertise knowledge, job market knowledge, soft skills, career support, networking, career exploration, career clarity, resilience and adaptability.				
b. Dependent variable: external employability				

ANOVA [a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	3808.334	12	317.361	16.786	.000[b]
	Residual	4178.264	221	18.906		
	Total	7986.598	233			
a. Dependent variable: external employability						
b. Predicators: (Constant), parent's education level, father's occupation, mother's occupation, occupational expertise knowledge, job market knowledge, soft skills, career support, networking, career exploration, career clarity, resilience and adaptability.						

Coefficients [a]						
Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficient Beta	t	Sig.
3	(Constant)	14.255	2.505		5.690	.000
	Occupational expertise knowledge	.834	.184	.327	4.545	.000
	Job market knowledge	-.021	.158	-.009	-.131	.896
	Soft skills	-.278	.238	-.078	-1.166	.245
	Career support	-.117	.133	-.069	-.880	.380
	Networking	.661	.203	.285	3.260	.001
	Career exploration	.061	.109	.046	.561	.576
	Career clarity	.272	.200	.089	1.363	.174
	Resilience	-.255	.169	-.107	-1.512	.132
	Adaptability	.393	.129	.246	3.038	.003
	Parent's education level	-.153	.327	-.036	-.469	.639
	Father's occupation	-.300	.254	-.091	-1.180	.239
	Mother's occupation	-.065	.263	-.018	-.246	.806
a. Dependent variable: external employability						

4.4.4 Regression model 4

Dependent variable:

- Total score on the internal employability

Independent variable:

- Parent's education level, father's occupation, mother's occupation
- Total score on the occupational expertise knowledge, job market knowledge and soft skills
- Total score on the career support and networking
- Total score on the career exploration and career clarity
- Total score on the resilience and adaptability

The outputs of regression model 4 (Table 4.21) revealed that internal aspect of self-employability was significantly predicated by four independent variables ($p < 0.05$). The model as a whole can explain 49.2 percent of the variance of internal aspect of employability. The difference was found in respect of which predicators made a unique statistically significant contribution to the internal employability when compared to the investigation on external aspect of employability. It was found occupational expertise knowledge, networking, career exploration and resilience made a unique contributions to the predication of internal employability.

Interestingly, the previous analyses indicated that identity capital and its dimensional constructs did not made a unique contribution to the self-perceived employability and external aspect of self-perceived employability, but it was found career exploration made a unique contribution to the internal aspect of self-perceived employability driven from the sample's perceptions (with $p = .049$ in the outputs of coefficients), which might refer to the degree of one's exploration of inside self and external their target occupation could facilitate their emergent career identity and were able to articulate self-concept in the appropriate way. In addition, the adaptability was found to make a unique contribution to predict the external aspect of self-perceived employability, while the resilience made a unique contribution to the predication of the internal aspect of employability. It is worth considering the construction meaning that Chinese doctoral students gave to their perceptions and actions. What is more, the strongest predicator of reporting in both regression models that derived from Chinese doctoral students' perceptions was the occupational expertise

knowledge, which might be explained by they were trained specifically in certain disciplinary area and looked forward to working in certain professional area.

Table 4.21 The outputs of regression model 4 (Internal)

Model Summary [b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
4	.720[a]	.518	.492	3.686

a. Predicators: (Constant), parent's education level, father's occupation, mother's occupation, occupational expertise knowledge, job market knowledge, soft skills, career support, networking, career exploration, career clarity, resilience and adaptability.

b. Dependent variable: internal employability

ANOVA [a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
4	Regression	3227.985	12	268.999	19.801	.000[b]
	Residual	3002.254	221	13.585		
	Total	6230.239	233			

a. Dependent variable: internal employability

b. Predicators: (Constant), parent's education level, father's occupation, mother's occupation, occupational expertise knowledge, job market knowledge, soft skills, career support, networking, career exploration, career clarity, resilience and adaptability.

Coefficients [a]						
Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficient Beta	t	Sig.
4	(Constant)	3.600	2.124		1.695	.091
	Occupational expertise knowledge	.674	.156	.299	4.329	.000
	Job market knowledge	.246	.134	.121	1.841	.067
	Soft skills	.281	.202	.089	1.393	.165
	Career support	.184	.113	.122	1.629	.105
	Networking	.515	.172	.251	2.998	.003
	Career exploration	-.184	.093	-.156	-1.979	.049
	Career clarity	-.143	.169	-.053	-.843	.400
	Resilience	.339	.143	.161	2.369	.019
	Adaptability	.101	.110	.071	.918	.360
	Parent's education level	.035	.277	.009	.126	.900
	Father's occupation	.011	.216	.004	.052	.959
	Mother's occupation	-.141	.223	-.045	-.632	.528

a. Dependent variable: internal employability

4.5 Summary

Overall, it was shown the fairly positive results in this study as the sample had reported the high level of self-perceived employability and forms of capital. The quantitative analysis has provided a descriptive overview of Chinese doctoral students' self-perceived employability, of which placed their self-perceptions connecting to the field of subject study, university brand and the state of external labour market. Having explored the dataset that the relationships and differences between self-perceived employability, forms of capital and demographic variables had become clearer. Firstly, it was found that a clear split between internal and external employability. There was a strong and positive correlations between internal and external employability. While external aspect of self-perceived employability was significantly higher than internal aspect. In addition, it was found that there were the strong and positive relationships between self-perceived employability and each form of graduate capital. In the descriptive statistics, parental background variables were found to have significant associated with Chinese doctoral students' self-perceived employability. However, after controlling for other factors, parental background could not predict Chinese doctoral students' self-perceived employability. In addition, the data of this study did not generate the results that was consistent with the previous studies, such as the impact of age, gender and discipline and certain work experience on the level of one's employability. This is might be because the non-random sampling methods and self-assessment way were used in this study, which led to the statistically non-significant results. Consistent with the previous studies (Tomlinson, 2017; Hirschi *et al.* 2017), the results of this study emphasised the importance of conceptualising the forms of capital as key resources to facilitate students' employability management. The results of survey data suggested that the usage of key resources constructs related to forms of graduate capital could improve the understanding of Chinese doctoral students' self-perceived employability.

Chapter 5 Interview findings

5.1 Introduction

In this chapter, the qualitative findings present the rich details of employability strategies that Chinese doctoral students gave to their perspectives on the labour market, and the sorts of ways they approached their wishes and aspirations.

This chapter is divided into two parts. The first part consists of intersubjective knowledge about credentials, education and the graduate labour market. The widely held view among Chinese doctoral students indicates that credential closure has become a real issue, because it organises the route into and rules for the highly skilled occupational fields they expect to enter. Since having a PhD degree has become more common in China, these participants recognise that obtaining relative positioning and adopting tactics will be able to give them a competitive edge when competing with other qualified PhD-holders. The second part concentrates on participants' employability strategies in relation to their understanding and mobilisation of each form of graduate capital, comprising how and why these capital resources are purchased, and how they are applicable in the early stages of labour market negotiation. It has been seen that possessing appropriate forms of capital is more likely to put these students in a better position for the job competition, because they have a better understanding of the graduate labour market and tailor themselves to meet the requirements of their chosen occupation.

5.2 The social construction meaning of employability by Chinese doctoral students

5.2.1 Perceptions of the value of the doctorate and PhD employment prospects

Only three participants enrolled into a doctoral course with a bachelor's degree, and the remaining 28 students had all completed a master's degree before they went for a PhD. It was clear from participants' responses that they came to pursue a doctorate for a range of reasons, some intrinsic, some instrumental and some strategic. However, the majority of them expressed the view that the growth of mass HE in China has changed the route of entering highly skilled occupations, therefore they had to adjust their strategy for gaining their wishes and aspirations.

Firstly, it was clearly shown that participants saw the growth of mass HE in China as intensifying the mismatch between certain knowledge and skills they acquired from university, and the jobs provided by the labour market. Most participants highlighted the mass of HE in China as causing the inflation of credentials, which has intensified the allocation of opportunities for them in competing for graduate-level jobs. In this case, there was a strong perception among participants that they should be responsible for their own chances in the labour market, by rationally investing themselves in pursuing a doctorate. In particular, participants who had study experience in a metropolis (i.e. Beijing, Shanghai and Guangzhou) presented stronger concerns.

The following quote is from Charlotte, who considered the necessity of becoming as highly educated as possible, because there were graduates crowding and competing for job opportunities:

"I studied for both my bachelor's and master's degrees in Beijing. In a competitive environment and under huge pressure, I thought it would be better for me to continue doctoral study. Then I could have more opportunities in the labour market. Because of the inflation of credentials, an undergraduate might find a job at college graduate-level. A master's graduate could probably only find an undergraduate-level job." (Charlotte, female, geology student)

This quotation reflects the participant's strategic motivations, based upon human capital theory. In addition to this, participants' responses also strongly implicated that they believed that doctoral training and education was an important human capital investment which could bring benefits in advantaging their job search. As explained by Finnie, her choice regarding investment in taking a doctorate was because she believed that the higher-level degree would help to convince future employers that she had strong potential in knowledge productivity:

"Many employers are eager to recruit doctoral students in our discipline. This is because they have strong capabilities in learning new things and have solid mathematics knowledge and skills ..." (Finnie, female, science student)

The emphasis on the knowledge-driven economy led the majority of participants to expect that a PhD degree could provide benefits over a long period of time. In particular, most participants were aware that the value of educational qualification has declined, whereas employers have kept increasing their demands on employees' educational levels and other aspects, in order to find a qualified candidate. Similarly, as a metropolis or other cities are able to provide more educational and job opportunities, more graduates later would intensify the competition for jobs. As a result, there was a strong sense among participants that becoming as highly educated as possible was a rational choice. This reflects how the nature of human capital has been understood and interpreted by students in the knowledge-driven economy.

As the above evidence shows, the majority of participants studied on a postgraduate taught degree before they took a PhD. Most of them explained that decisions regarding pursuing a master's were largely facilitated by peers who decided to do so, which drew on a defensive strategy. They did not limit the range of jobs that they felt they had a chance of getting, but made decisions depending upon which choice was able to provide more benefits. The human capital theory assumes greater importance in understanding their motivations, because it shows their thoughts about human capital investment and their incentives for investment. It was clearly shown that participants aspiring to develop a career within their highly skilled occupational field was attributed to the fact that they believed that this investment in education and research training could to lead to their productivity increasing, thereby having social stability and healthier lifestyles.

However, it was shown that master's-level education and qualifications did not pay off for their expectations in job searches, due to the growth of mass HE and credential closure in certain occupational fields. The data shows that some participants experienced failure in searching for research-related positions after their master's study, as described by Hazel:

"I tried to find jobs during the period of writing up my master's thesis. I expected to find an R & D role in the field related to fats and oil. I sent my CV to soybean and palm oil companies. But I was refused because they only recruit PhDs. So, I came here for a degree." (Hazel, female, science student)

Again, Alan talked about the necessity of possessing a doctorate for finding a research specialist's position in the industry field, because this has become more common within STEM-related disciplinary areas. His responses further facilitated his understanding of the relationship between a degree and its opportunity structure in certain occupational fields:

"Most students who studied within my subject areas (artificial intelligence) would find it quite easy to find a job in other disciplinary areas because of the popularity of its relevant industries. Undergraduates and masters are more likely to undertake basic tasks, while they [technology companies] would only hire PhD students for conducting the leading and innovative roles, e.g. research and development roles, because of the level of specialist knowledge and skills." (Alan, male, engineering student)

The following quote also confirms the role of a doctorate within the field of industry. It suggests that without a degree, one could never get above a certain level of job, as stated by Williams:

"I stayed in the lab for five years. I couldn't take a core R & D role because I didn't have a doctorate." (Williams, male, engineering student)

Likewise, the acquisition of a doctorate as regulated access to academics has often been mentioned as the reason that attracted participants to continue pursuing a degree. For example, Alice worked at a university for ages, but without a degree she could not formally obtain a lecturer's permanent position:

"I was responsible for some administration work. Meanwhile, I also undertook teaching tasks for the required public courses (e.g. Marxist philosophy). I worked in a lecturer's role, but without a doctorate degree I couldn't transfer my contract from administration to academic formally and permanently, even though I have a master's research degree." (Alice, female, social sciences student)

Alice argued that she could give lectures at the university, but without a degree she was not in the game. The game refers to obtaining a lecturer's permanent position. Interestingly, there was a strong sense among participants who came from the less advantaged groups perceiving that this kind of high credential closure helped them to access more satisfying working conditions and an economic return in the labour market. Although having a doctorate may not contribute as much to employment prospects as having a degree in the past, participants believed that having a PhD at least could enable their life rules to change and could provide certain opportunities to accrue upward social mobility. More specifically, they emphasised the strong link between the degree and certain occupational fields, as mentioned by Evan:

"At least I don't need to follow my parents' occupation and am more likely to find a job with high knowledge productivity." (Evan, male, engineering student)

Reading participants' profiles, most of them said that their parents were farmers or that they undertook physically demanding jobs, which led to the sense of feeling that the investment in doing a PhD was the simplest way to make themselves more employable in the labour market, because their parents would not be able to provide any occupational socialisation to advance their job search.

5.2.2 Perceptions of the labour market rules: positional competition

Although the existence of credential closure within highly skilled occupational fields organises the route and rules of access, it may not guarantee a doctoral student's successful employment in their desired occupational field. Participants talked about the increasing number of overseas returnees intensifying the competition within the domestic PhD labour market. In response to the larger pool

of PhD graduates and the limited number of professional jobs, they were greatly aware of being actively responsive to the distinct labour market rules in order to 'get ahead' of the competition.

5.2.2.1 Prestige of the university attended

Firstly, it was clearly shown that the status of the university attended constituted a crucial aspect of participants' perceptions of their own employability. Participants talked about the pressures regarding the uncertainty and changing demands of the labour market, so they felt that the prestige of the university attended was likely to be used in the future job search.

It was suggested that participants' motivation regarding selecting the target university for pursuing a PhD was mostly because of its 'Project 985' institution brand, with a strong reputation in their field of study. It is evident that participants aspired to develop an academic career, so it gave them a specific reason to go to a 'Project 985' institution:

"The 'Project 985' institution might be the 'Project 211' institution, but the 'Project 211' institution might not be the 'Project 985' institution. The 'Project 985' institution has the higher prestige regarding doing research nationally and internationally, which could provide more benefits for their doctoral students to engage in research-related events and experiences, which significantly boost employment prospects in academia." (Emma, female, social sciences student)

For the early job information collected, participants found that research-intensive universities had specific requirements for applicants' degree-awarding institution, needing them to have their bachelor's, master's and doctorate degrees all from an 'Project 985' institution, and ideally with applicants studying in different institutions. Asked for their perspectives on this specific job requirement set by research-intensive universities, most of them felt that it was reasonable. There was a strong sense among study participants that being caught up in the growing numbers of PhD-holders would lead to employers intensifying their screening processes at the elite end of the labour market. Such views further relate to what was a widespread perception of the university brand placed upon students, that pursuing a degree at a highly prestigious university would enable them to access its opportunity structure and maintain a relative place within the hierarchy of jobseekers. This is reflected in the perceptions of participants who maintained a good institutional profile and felt confident that they would be able to secure future employment even under such rigorous screening process:

"I searched the recruitment information about academic posts and found many opportunities. This is because I studied for my bachelor's, master's and doctorate degree all in 'Project 985'

institutions, and they are all the top-ranking universities in China. I feel confident about securing good employment in any research-intensive universities." (Zoey, female, social sciences student)

Some participants perceived that their opportunities of finding a job at a research-intensive university were lower because they did not obtain a bachelor's degree either from a 'Project 985' or a 'Project 211' university. However, it is clear from their responses that their level of self-confidence was boosted by attending a highly prestigious university. These perceptions are typified in the views of Vincent and Emma, both of whom were clearly aware that their decisions about participating in a 'Project 985' institution drew heavily upon the additional value attached to the university brand. Vincent explained this:

"Research-intensive institutions have explicit job requirements in the degree. They only recruit applicants who were awarded their degree by a 'Project 985' institution. My bachelor's degree was not from a 'Project 985' university, but I believe that with my master's and doctorate degree both from good institutions, I still have lots of opportunities in finding an academic post in other non-research-focused universities." (Vincent, male, social sciences student)

This quote indicates that in competing for the highly prestigious universities' positions, those students who had a disadvantaged institutional profile were considered as minimally qualified in the elite pool, but the brand of university improved their relative place within the next hierarchy of jobseekers. In Emma's case, her views on the value of the university brand was reinforced by the increasing number of overseas returnees who also had the appropriate qualification and skills in competing for jobs:

"There are an increasing number of PhD graduates who studied overseas and came back for academic jobs. Apparently, I don't have the opportunity to compete for a research-intensive university position, because I didn't get my bachelor's degree from a 'Project 985' university. However, having my master's and doctorate degree both from a 'Project 985' university, I have more confidence about my future job search ..." (Emma, female, social sciences student)

It is also evident in the group of STEM-related students' perceptions that they found employers outside academia increasingly specified job requirements in terms of which degree and which type of institution. In addition, there was a strong sense amongst these participants that the acquisition of a degree from a prestigious university was the immediate way to indicate their productivity potential, which draws upon human capital theory. Rather than dominant human capital theory discourse, such perceptions are also related to the social and educational context in which students have to pass a national exam in order to obtain access to HE, and their academic performance in the exam largely determines which type of institution they are able to attend. Strongly implicit in

participants' responses is the sense of viewing their future employability as linked to employers' interpretation of the value of the university attended:

"There are lots of technology companies which have specifically targeted our university in terms of cooperated research projects or recruited graduates." (Williams, male, engineering student)

At the same time, it is clear that much of how participants viewed their own employability associated with a university brand was also derived from what study experience that university provided. Primarily, this is reflected in the sense that university rankings are associated with the allocation of research funding, good educational infrastructure and resources. Strongly implicit in participants' responses was that they agreed on the high level set by research-intensive universities for employment requirements for academics. They believed that the implementation of higher requirements for recruitment enabled research-intensive universities to employ academics in research and teaching, which in turn would provide doctoral students with advantages in the labour market. In addition, there was a strong sense among participants that they viewed a university's rank as influencing its allocation of national investment in research and resources, which might directly influence their own personal and professional development. It is clearly shown that participants in STEM-related disciplines particularly had concerns about access to funding and research infrastructures:

"The reagent I used for my experiment is really expensive. If I had studied in a less prestigious university, they wouldn't fund their PhD students spending such a lot on their own research. I nearly completed my experiment, and I am applying for a patent. I believe if I had obtained my patent, it would greatly assist me in my future job search." (Finnie, female, science student)

There was a widespread perception among STEM-related students about the crucial role of the prestige of the university in assisting them to access the large number of tangible and intangible goods and support in order to smoothly complete their doctoral studies; such support might not otherwise be available if they chose to study at a less prestigious university. Regarding social sciences and humanities students, the majority of them perceived that their professional knowledge, skills and network had been largely boosted by access to adequate resources and support provided by their present university. This is reflected in the perceptions of Daisy and Alice, both of whom understood the role that their university's reputation played within their own professional development:

"I did several MOE-funded research projects. Research-intensive universities are more likely to obtain access to superior academic and financial support from relevant authorities, so that any

research experience and other events I have participated in could be put into my CV, which would help to distinguish it from others." (Daisy, female, social sciences student)

In Alice's case, she argued that it was difficult for politics students to conduct empirical research about cross-straits relations due to the serious political situation between mainland China and Taiwan. However, it was the prestige of the university in the field of political research and its partnership relations with the local research centre that assisted her favourably to undertake fieldwork:

"A university with a good reputation was easier to build up partnership relations with other universities …" (Alice, female, social sciences student)

To this extent, the prestige of the university attended was seen by participants as a positional benefit and key dimension of their employability when competing for future jobs.

5.2.2.2 Relative performance

Despite the evidence above showing certain structural barriers at the elite end of the labour market, most participants were able to be actively responsive to the demands of their chosen occupation. Strongly implicit in participants' responses was that they were aware that their relative position within the hierarchy of the PhD holders was completely individualised, which depended on how they acted in order to obtain advantages over others.

The first clear finding shown is the important role that individual publication performance played in the early stages of negotiating labour market demands, which also consisted of the relationship between personal actions and what related accomplishments the participants achieved. The evidence of this study suggests that Chinese doctoral students in the target university were required to complete three published papers in core journals in their subject area before the final doctoral thesis submission. Given this reason, participants in this study described investing all their time and energy in engaging with paper-writing and dealing with issues arising from publication from the beginning of their doctoral course. It was clearly shown that participants' initiatives in engaging with publication was not only because they were driven by their university's graduation criteria, but also because they thought to utilise their publication performance as a source of positional advantage in their future job search. Clearly reflected in Emma's responses was that she had a precise idea of how a PhD's publication performance would be interpreted by employers in the HE domain:

"Our country is starting to undertake double top construction (the evaluation of world-class universities and disciplines) to cultivate talent … So, if universities would like to be awarded the 'double first-rate' title, they have to obtain an 'A' level through the evaluation. While one aspect of the evaluation is the number and quality of publications coming from their academic staff …" (Emma, female, social sciences student)

This view was echoed in Daisy's responses, who argued that HE institutions are eager to recruit individuals with high productivity potential in publication to improve their academic performance. Daisy explained that she helped to conduct a government-funded project in which publication was regarded as an important index in the evaluation:

"We used staff-members' publications as one of the key variables to evaluate universities' performance …" (Daisy, female, social sciences student)

It is also clear from other participants' responses that it has become a more common feature to require doctoral students with good publication performance to work in professional roles. Such distinct individual performance valued by the highly skilled occupation fields largely facilitated participants' perceptions in making sense of the link between their relative individual publication performance and future labour market opportunities. In addition, the growth of mass HE opens access to those willing to invest in education and skills; however, the competition is not just based on accomplishing their degree, but also plays out in the use of the right signals to get ahead. Therefore, there was a sense of 'Always improve' and 'Find the right thing to get ahead' among participants. This perception is typically reflected in Peter's response about the importance of providing the right signals to employers:

"Publication is broadly a qualifier to get into academia. I want to differentiate myself from other PhD students. And I know that I have to put efforts into improving my own performance, especially publishing papers as an independent author, and publishing in high quality journals, because they are the ones that universities want." (Peter, male, social sciences student)

Additionally, there was a sense among participants that once they were in the interview process, it was at that point more about their personal characteristics and expertise. This particular understanding also made participants see their individual performance as 'Always improve', especially through knowledge, skills and experience aligned to their chosen area.

5.3 Understanding and mobilisation of human capital

5.3.1 Occupational-specific human capital as employment signifiers

The evidence of this study suggests that participants viewed the most important aspects of their employability as packaged in their occupational-specific human capital. Because there is a strong link between HE and their target occupation, participants were clearly aware of developing these hard and soft currencies. Clearly this occupational-specific human capital was seen as the important employment signifier to help them align to their chosen or target occupation – subject-specialist knowledge, research-related knowledge, skills and competencies, and soft skills as well.

Participants in this study were clearly aware of their subject-specialist knowledge continuing to be important during and after their doctoral studies. Firstly, it is clear from participants' responses that the acquisition of adequate subject-specialist knowledge could positively influence their individualised performance during their doctoral studies. This viewpoint was typified in the responses of participants who experienced a change in research focus or subject specialism. Charlotte described her difficulty in the first term of her doctoral studies because she changed research focus. Her view was that the acquisition of more subject-specialist knowledge was likely to facilitate a doctoral student's progress associated with her academic performance:

"I feel the challenge to write a research proposal, select the topic and design my own research project … So I started to read textbooks and relevant theories in my specialist field. I have recently found it is much easier for me to read and understand articles." (Charlotte, female, social sciences student)

This view was strongly supported by Isabella. She argued that a doctoral student lacking some acquisition of subject-specialist knowledge was likely to be impeded by deficiencies in developing academic performance, such as publication. This particular understanding by participants largely facilitated their views on seeing the relationship between the acquisition of subject-specialist knowledge and the development of their relative individual performance during their doctoral study.

It was clearly shown that most reported that the more specialist knowledge they acquired, the better performance they achieved in publication. In humanities and social sciences, students reported that they were expected to formulate research questions and address the questions in an appropriate theoretical and methodology framework, and thus the acquisition of subject-specialist knowledge could facilitate their breadth of knowledge in their specialist field and foster more output. Peter in particular pointed out that the acquisition of more subject-specialist knowledge

helped to broaden his horizons in his discipline, which advantaged him in identifying a knowledge and skill gap, and facilitated his progress in research and publication. In addition, some STEM students considered that subject-specialist knowledge was the strong foundation of their scientific knowledge, that could help them make judgements on complex issues in their specialist field and was valued by employers, either inside or outside academia.

As regards research knowledge and skills, these were ranked highly by participants: research methodology and techniques, research management, laboratory experimental skills, data analysis skills, and writing and reporting skills. Participants felt the necessity of possessing enough research competencies and skills in their specialist field, as these were the foundation to help them undertake research study. Most participants expected to be employed in academia, so they felt that the research knowledge and skills acquired were the right signals, as they could be directly used in future work. Additionally, most participants mentioned the importance of developing academic writing skills during their PhD candidature. It was clearly shown that developing academic writing skills was not only to write papers and publish, but also a way to articulate their personal employability. Isabella explained it thus:

"No matter what subject you study, you have to present your research output through writing. That's what employers want ..." (Isabella, female, humanities student)

In addition, there was a strong sense among participants that their ability to independently undertake quality research and their potential to publish were valued in the HE domain, which could advantage them to smoothly enter into academia. This is described by Daisy:

"There is a senior student in our discipline who is good at doing quantitative research. He conducted many quality quantitative researches independently during his PhD candidature, so he easily got a job in XX [employed university's name]." (Daisy, female, social sciences student)

An engineering student explained it like this:

"My supervisor's death had a great influence on each student in our research group. I graduated successfully, some of them transferred to other research groups, and some of them dropped out. Everyone in our subject basically does experiments under the guidelines of a collaborative research project. And most collaborative research projects are funded by the government, so there are few opportunities for individual students to publish. So I feel it's important to conduct my research independently. Apart from completing the tasks assigned by my supervisor, I also did some research experiments independently and completed publication in the time frame." (Evan, male, engineering student)

Compared to research-related knowledge and skills, the value of soft skills was rather unclear. This is because the majority of participants were likely to use soft skills rather than seeing their value as an employment signifier. For most laboratory-based students, they found it important to possess oral communication skills because they had internal laboratory meetings on a regular basis; especially if they were participating in a collaborative research project, they would have to report and share research progress with each individual in the project. Similarly, humanities and social sciences students also reported the need to possess oral communication skills to conduct research study. Regarding time management, most acknowledged that having good time management skills was likely to improve their study effectiveness and productivity. However, only one participant in this study stated that he would like to put having good time management into his CV as a signal to attract employers, as shown in the following quotation:

"I would like to put time management skills into my CV, because I feel I developed good time management skills during my PhD candidature. I completed two papers as first author, and I would like to go for overseas study next term. So employers will see that I have productivity potential and a good awareness of deadlines when conducting research work." (Peter, male, social sciences student)

5.3.2 Labour market knowledge and career building

When asked questions about labour market knowledge, most participants could clearly talk about certain entry requirements for academic positions, and types of institutions, average salary and work environment. In light of this evidence, clearly reflected in participants' responses is that they were well aware of the right signals that employers wanted, such as credentials, knowledge and certain publication performance. But many of them still felt that there was ongoing uncertainty over the labour market. This particular understanding made participants aware of what they could do for competition in the near future, which was 'Always improve' and 'Find the right signals to get ahead'.

However, there was a sense of perceiving certain structural barriers in the labour market. It is evident in participants' responses that some of them felt that luck played a major role in determining their access to the opportunity structure. Some participants argued that the demand for academic vacancies in their discipline was to some extent influenced by the popularity and development of the discipline. Daisy talked about the declining popularity of education at undergraduate level, so that many universities closed off their HE research centres, which in turn,

led to fewer vacancies being available to education PhDs. On the contrary, a student who studied Marxism saw a different situation:

"There are more and more universities opening up their research centres for Marxism-related study." (Sophia, female, social sciences student)

Regarding this, some participants argued that it was important for PhD students to understand the political dimension of the graduate labour market. They saw that the implementation of HE policy largely determined the way that individual HE institutions would invest in subject development, closely related to how many academic staff-members they would recruit. This perception was reflected in Emma's responses:

"The 'double first-rate' policy would have a huge impact on future opportunities in the academic labour market. If universities would like to award a 'first-rate' title, they have to meet the requirement of employing a high enough number of qualified academic staff. I heard from academic staff that XX [university's name] announced their intention to establish a research centre. That might be my opportunity." (Emma, female, social sciences student)

While it is clear from Emma's responses that she understood opportunity awareness and exploitation, it was largely facilitated by informed knowledge from others.

5.4 Understanding and mobilisation of social capital

5.4.1 Use of strong ties

There was a strong sense among participants that perceived strong ties could potentially provide career support, from engaging in planned and unplanned learning experiences to gathering relevant information about the target occupation and its opportunity structure.

Firstly, it is evident in participants' responses that parents' interactions and expectations in early childhood had an initial impact on their decisions, in terms of choosing a subject specialism for their undergraduate course and forming later career aspiration and choices. This perception was reflected in participants' responses, whose occupational choice information was originally received from their parents, as shown in the following quotation:

"When I was young, my mother always took me to visit a relative who was a teacher. She always told me it was good to be a teacher, then I could have a stable job, two vocations … It might be at that time that I thought about becoming a teacher myself." (Peter, male, social sciences student)

Clearly it is evident from participants' responses that some of them obtained an early form of occupational socialisation from their parents, if their chosen occupation happened to be the same as that of their parents, as explained by Emma:

"My mother is a teacher. Although she is a primary school teacher, I obtained from her many initial ideas and information about working in the education system." (Emma, female, social sciences student)

In addition, it was clearly shown the significant phase actually started after participants began their doctoral course, because they started to gain certain career knowledge and information from their supervisors and senior students in their subject area.

Clearly reflected in participants' responses was that they were aware of the role that supervisors played during their doctoral studies. They explained that their supervisor provided them with academic support and opportunity to improve their relative performance during their PhD candidature. In terms of academic support, most participants felt that receiving good supervisory support from their supervisor was important, as they received recommendations from their supervisor to identify appropriate research training. This was evident to Isabella, whose supervisor asked her to write a weekly literature review as good practice. In terms of opportunity, two participants mentioned that their supervisors helped to provide them with an opportunity of joint training with a foreign university. Some participants mentioned that their supervisor encouraged them to attend academic conferences or publish more papers. Additionally, some participants reflected that the experience of acting as their supervisor's aide and helping to undertake some influential research projects was likely to maximise their opportunities of knowing significant people in the same disciplinary area, which in turn advantaged them to obtain better information. Daisy reflected on her experience of helping her supervisor undertake a research project associated with HE institutions, and told us the following:

"I met some university staff when I undertook my data collection there. So I had the chance to ask some questions about employment." (Daisy, female, social sciences student)

Although most participants mentioned that they did not even have a conversation with their supervisor to talk about their future career, they obtained initial ideas of the right signals in competing for academic jobs through these daily communications and interactions with their supervisor.

Another important support acknowledged by participants was the help in accessing culturally valued knowledge and opportunities, which might confer advantages, as described by Emma:

"My supervisor will go to the United States for a study visit this August, so she asked if I could submit my CSC application as soon as possible, and then I could go to the same university. She said she would help me search for a host supervisor to supervise my study during the following year. Then I could use her resources to produce more work during my candidature. She said that having more publications would advantage me in securing academic employment. " (Emma, female, social sciences student)

However, it was sometimes also clearly shown that there might be certain disagreements when considering training needs. This was reflected in Charlotte's responses:

"He [supervisor] didn't agree for me to apply for a CSC overseas study visit. He felt it would influence my graduation in the required time frame … In addition, my supervisor doesn't suggest that I attend conferences, because he thinks I should spend more time doing research projects." (Charlotte, female, social sciences student)

Most of the students reported that they would obedient and follow their supervisor's opinions when any disagreements happened. Thus, there was a widespread sense among participants that maintaining a good relationship with their supervisor was far more important than others, as it affected whether they would be able to graduate on time. In addition, most participants described their reliance on senior students in the same disciplinary area, as they would ask them questions related to writing papers and job search information.

Beyond strong ties (e.g. family, supervisor, fellow students), it is clear from participants' responses that weak ties also exerted a positive influence on information flow. Regarding this, Evan mentioned that he obtained joint employment information from a staff-member who took on a collaborative project. However, it was clearly shown that participants were aware of the lesser use of weak ties.

5.4.2 Different networking behaviours between disciplinary areas

In addition, there was strong evidence that doctoral students' understanding and networking behaviours were influenced by their own discipline culture and study paradigm.

It was clearly shown that laboratory-based participants were more likely to positively establish and maintain relationships with others while they were students. Participants in these laboratory-based disciplines explained the specific climate of conducting collaborative research, and how frequent contact with others in the lab largely facilitated them in building up networking in their subject area,

comprising undergraduates, master's and PhD students. Compared to humanities and social sciences, laboratory-based participants were more likely to take advantage of the networks that they had and maintained. Here was the reason:

''The most common way to find a job in our discipline is internal referral. We had lots of lab students employed in the industry field (e.g. Huawei, Ali, and Baidu). They will introduce peers who are in the lab network to obtain certain job opportunities." (Alan, male, engineering student)

In addition, it is clear from these laboratory-based participants' responses that the possibilities of getting certain job openings and obtaining interview opportunities for jobs which were not advertised was likely to be reinforced by the trust and knowledge developed through collaborative work habits. This view was clearly evident in Williams' responses:

''I got the offer from Toutiao because XX recommended me to his line-manager. We used to work in the same lab when we studied for our master's, and he knows my research competencies match the job requirements, so he recommended me for interview. Everyone in the lab still keeps in touch with each other. If there are job opportunities or any job opening information, we will introduce to the appropriate person.'' (William, male, engineering student)

Thus, there was a strong sense among laboratory-based participants perceiving that the networks that they maintained could endure for years and even a longer period, as they were more likely to be employed in the occupational domain. By contrast, this was not found in the humanities and social sciences, where the sense of valuing social networks was less strong and not prevalent. This was clearly reflected in Daisy's responses:

"Our discipline doesn't provide an office for doctoral students, so I always study alone in the library or in my room. I think the majority of students in my discipline would be the same … Except for having class together in the first year with fellow students, we have to complete our own project alone in the following three years. Sometimes I see other students in my supervisor's office, but we can't talk as the supervisor is there." (Daisy, female, social sciences student)

The majority of students in the humanities and social sciences told how the process of their PhD study was to undertake research independently and spend four years alone to complete it. As a result, it is evident from their responses that they found infrequent contact with their fellow students and few networks to maintain. Although few students utilised the method of attending academic conferences to build up certain professional networks with other doctoral students in their subject area, it was found to be hard to maintain, as suggested by James:

"Basically, people chatted in the WeChat group [social media]. Once the conference finished, this chatting group was over." (James, male, humanity student)

In addition, it is evident from participants' responses that shyness might be the main issue resulting in their infrequent contact with new people or networks.

5.5 Understanding and mobilisation of cultural capital

5.5.1 Embodied capital developed through doctoral study

While the study experience of doctoral students in different disciplinary areas might be different, it is clear from participants' responses that through their doctoral candidature, they gained many insights into the HE domain and developed much embodied knowledge and many behaviours and symbolic qualities in relation to academics.

Firstly, it is clear from the study data that specific discipline cultures and their studying paradigms might strengthen the ways in which these Chinese doctoral students developed certain understanding regarding the culturally valued knowledge, embodied behaviours and qualities in their field. Strongly implicit in participants' responses was the differences between laboratory-based and other students in articulating the important formation of appropriate cultural and symbolic qualities in relation to academics, largely driven by their understanding in their field of study. It is evident from laboratory-based students' responses that they viewed the desirable quality in their field as knowing how to work with others, generally referring to cooperation. Most laboratory-based participants described having interaction with others in the laboratory on a regular basis to achieve their shared goals. Each student in the laboratory had their own research and task to do, but they all contributed to the collective output of the research project, as explained by Alan:

"My doctoral study is based on a collaborative research project funded by the government. So, what I have to do is to select a point on the basis of this research project and conduct my own research to contribute to the whole project. This is a huge research project, including three universities and their PhD, master's and undergraduate students taking part in the study. Each one is seen to be responsible for their own task and to contribute to the collective output. But cooperation is also seen as very important in this project, because you might need data or some sources from other partners. " (Alan, male, engineering student)

Such views were also echoed in other laboratory-based students' responses. It was clearly shown that these students greatly valued developing interpersonal skills and collaborative work habits because these qualities supported their intellectual collaboration and research outputs, which also implicitly had an impact on their networking behaviour. In addition, some participants mentioned that they had internal communication over laboratory benches, and some of them had regular internal laboratory meetings. Such dispositions and behaviours further contributed to their perception of the necessity of developing high levels of collaborative work habits in their discipline.

On the contrary, the embodied behaviour and quality of academics perceived as valuable in humanities and social sciences was their independence. It is clearly seen in participants' responses that they perceived that they were expected to select their research topic and design, and complete their own research project independently. In addition, participants found that most research projects that their supervisors had done were based on small-scale studies, mainly relying on one key person, who is likely to complete the research through data collection and then writing up reports. Such perceptions further enabled participants in the humanities and social sciences to feel confident about developing a career in their subject area, because they developed the competencies and symbolic qualities in the form of independently generating original research during their PhD candidature.

Despite the differences between the disciplines, it was clearly shown that participants did not view their cultural capital as inherited, but as gained through the intensity of cultural experience aligned to the working context they would like to enter in the future. It is clear from participants' responses that they viewed their embodied capital as being largely developed and improved through engaging in research-related and teaching-related training activities and practices. As mentioned earlier, there was a widespread sense amongst participants that they placed great weight on maintaining the number and quality of publications, because these signal indices were relevant to their individualised performance in competing for academic jobs. The majority of participants were also able to list precisely which journals ranked highly and to indicate the rule about publishing papers in their field. Such embodied capital in relation to academia was clearly reinforced by the intense culturally related experience they gained through writing and publishing papers. This perception was again reflected in some participants' habits of taking notes of what they read in order to increase their scope of knowledge for publication:

"I will take notes about what I read. Writing a paper really depends on how much literature you have ever read, and how you understood and provided some new ideas …" (Peter, male, social sciences student)

Regarding the teaching aspect, most participants explained they became more aware of what teaching was and how to teach in HE by immersing themselves in short-term teaching-related training. This perception was reflected in Emma's responses:

"I got some experience in relation to teaching in my first year. Each PhD is required to be a teaching assistant for one term … This experience enabled me to familiarise myself with how to formulate a plan for some learning modules, in terms of designing activities, taking the class and assigning summarising homework ." (Emma, female, social sciences student)

In addition, it is evident from Daisy's responses that such intensive teaching-related activities were likely to shape her understanding and reflection on what else she needed to enhance, in order to align to a teaching role:

"I think I still need to enhance my teaching skills … I feel the deportment of a teacher is quite important. And I think I lacked a dignified bearing when I did my teaching-related task. And I think I should also learn more about time management in class because I couldn't control my timing well …" (Daisy, female, social sciences student)

The evidence of this study suggests that participants' embodied capital in the form of teaching skills and relevant qualities was likely to be reinforced by immersive teaching-assistant training. However, the data also highlighted concerns about embodied capital enhancement for those who considered an alternative career. It is clear from these students' responses that they found that they lacked the appropriate embodied capital in the form of behaviours, dispositions and interpersonal skills to signal their fit in governmental employment or other non-research-related roles. This view was reflected in David's responses:

"To be honest, I don't know whether I should stay in academia or not, because it is quite challenging or there might be no future if I continue to do theoretical study in my subject area, as now we have met the bottleneck period for theory development. I heard about Xuandiaosheng [selected graduates to be cultivated for government], but I don't know any further information about it …" (David, male, science student)

This quotation mainly reflected the issue associated with mismatch information. On the contrary, the evidence of this study suggests that some participants obtained this information at a very early stage from their parents working in the government sector, in terms of building up certain perceptual bridges of the cultural domain related to their parents' occupation. While participants explained that they would not choose to follow their parents' occupation, obtaining this information early was likely to strengthen their level of envisioning potential job choice. It was clearly shown that some of them gained enough information at an early stage about Xuandiaosheng

in relation to its social prestige, income level, security and career prospects, which in turn meant that they were greatly aware of paying more attention to enhancing the embodied capital and symbolic quality in whichever occupation they chose. Of note was that even in early childhood, some parents also actively took part in their child's imaginary and anticipatory socialisation in relation to a particular occupation.

5.5.2 Perceptions of 'distinction'

The evidence above shows that participants were greatly aware of developing these signal wider skills and dispositions in order to show their desirability within the field of academia. However, the findings also suggest that participants presented somewhat different views and approaches in their ways of developing culturally valued knowledge, dispositions and behaviours to help them stand out from the crowd, based upon their understanding of 'distinction'.

The previous evidence highlighted the fact that students perceived their credentials were unable to help them secure academic or research-related employment due to the growth of mass HE and the nature of the dynamics of the labour market itself. The PhD labour market was therefore constructed as offering less of a protective shelter, therefore they perceived that they had to adopt more player tactics to signify their value as PhD holders and had to differentiate themselves from other PhD graduates. Publishing papers in highly ranked journals was therefore regarded as the effective way to build up their self-confidence and self-perception of value as research students. As evident in the following quotation, Emma discussed her understanding of 'distinction' on the basis of the publishing rule in her field:

"I remembered I talked about there being only four core periodicals in my field of study. Because the specialism I chose is a second-rate subject, sometimes it would be quite difficult for us to publish papers in those top journals … If I could have at least one paper published [in the top journal], that will be the most direct way to stand apart from others …" (Emma, female, social sciences student)

Such views were also echoed in other participants' responses as they perceived the great value of publication in relation to obtaining access and cultivating symbolic qualities within their chosen occupation. In addition to publication, the evidence of this study also suggests that participants' cultural exposure and awareness of 'distinction' were likely to be reinforced by strong interactions with supervisors and peers within the institutional context. Strongly implicit in participants' responses was that certain interactions played a crucial role in providing actual experience to

facilitate cultural understanding and exposure, which influenced which extra activities and experience they would like to be involved in and how much time they would like to spend on them. This was initially reflected in how participants saw the value of having certain type of research project experience, as described by Daisy:

"I helped my supervisor conduct two MOE-funded research projects which are highly valued in my field of study, so I was able to complete three published publications in my first year. Although I don't need to worry about graduation requirement, I am not the first author of those three papers. If I want to be more competitive in competing academic jobs, I have to endeavour to publish papers as the first author, and especially I could use what I learnt from this experience …" (Daisy, female, social sciences student)

Some students had somewhat different views, as suggested by Charlotte, whose views mainly reflected her concern that conducting similar types of research projects was time-consuming and unlikely to contribute to her own personal development:

"We [senior students and Charlotte] helped supervisors undertake quite a lot of business-related research projects, but they were confidential and not likely to be published. It is good to have some research project experience. However, if doing too much, this is really time-consuming. I saw some senior students spent too much time on working on those research projects, so that they didn't even have enough time to complete three published papers, not to mention publishing a paper as the first author". (Charlotte, female, social sciences student)

Clearly both views emphasise the value of having certain research experience, but participants were more keen on any sort of symbolic value through certain research project experience, such as publication. While participants' intentions and engagement in academic conferences were varied across disciplinary areas, there was a widespread sense amongst participants that highlighted the value of presenting papers at highly ranked international conferences. Compared to domestic academic conferences, participants in STEM-related disciplines showed a stronger level of interest and engagement in attending international conferences, which were usually seen as the tier-one conferences in their field of study and which also had more rigorous criteria in reviewing abstract submission. Because their ability to present at conferences was strongly associated with the progress of their doctoral study and with obtaining certain signal values to differentiate themselves from others, STEM-related participants in particular referred to how successfully they had completed their experiments. For the most part, humanities and social sciences participants were keen on attending different types of academic conference in order to broaden their research horizons and skills as well as socialisation. As mentioned earlier, their studying paradigm is fairly independent, which means that they might rely on attending academic conferences to build up

their professional networking. Of note was some participants perceiving the value of presenting at an international conference as not just based on its reputation, but also that they were likely to signal their language skills in order to stand apart from others:

"The majority of domestic PhDs are not good at English. Although I am doing Korea-related study, I still feel that attending an international conference which requires us to use English to present is likely to distinguish my ability from that of others." (Peter, male, social sciences student)

Thus, there was a strong sense amongst these participants of the symbolic value of attending academic conferences, rather than quantifying the number of conferences they had attended to put into their CV. What is more, most participants also often mentioned CSC-funded overseas study. On the one hand, participants were mainly of the view that having such experience was likely to increase their horizon-scanning, as most subject frontiers are at overseas universities. On the other hand, it was clearly shown that obtaining a CSC scholarship was a certain kind of distinction, as CSC would only select and fund those applicants with good academic performance and research ability.

5.6 Understanding and mobilisation of identity capital

5.6.1 Emerging academic identity and personal investment

The evidence of this study suggests that emerging career identity plays an important role in facilitating participants' early career exploration and personal investment in approaching their aspirations.

The immediate advantages shown were that participants' intentions and actions were reinforced by a certain emerging academic identity, which largely motivated them to take part in an early form of occupational socialisation and investment in order to equip themselves with the given profession and expertise. This was typically reflected in the cases of Peter and Vincent, who both perceived they became more actively responsive to the demands of their chosen occupation, enabling them to be more likely to land a chosen job.

Peter reflected on his unhappy experience working in the government sector, which reinforced his intention to return to an academic setting. He thought that prior work experience enabled him to be aware of his personality, which was not suitable for working in the governmental environment, and he still had an interest in pursuing a university research career. Once his career orientation was set, he started contacting the supervisor from his master's course. If he wanted to secure an academic post at the university where he did his master's course, a person working there could

provide the most useful information and give him better-informed insight and suggestions, as shown in this quotation:

"My supervisor [at the master's course] suggested that if I would like to work here, I should learn one more language, especially Korean, because the university is located at the boundary between China and Korea. This university has a good reputation in conducting comparative studies between the two countries. So, I am now working on researching the education system between the two countries. My doctoral thesis is about the comparison between the two countries' higher education systems. In addition, I have learned Korean by myself and have already received the offer of a one-year, CSC-funded Korea study visit. I have had two articles published and am now starting to write my next article, and hope the visiting experience might provide me with more ideas …" (Peter, male, social sciences student)

Similarly, Vincent said that prior work experience as a graduate trainee outside academia enabled him to realise what types of jobs he liked and disliked, and he became more keenly aware of his interest in pursuing an academic career. In addition to this, he talked in particular about the power that the institutional profile and ranking played in the job search. In order to respond to this, Vincent described the ways he thought that he could improve his relative positioning, in terms of why he chose the target university for his doctorate, his plan to apply for CSC-funded study, and how he could plan and complete a certain number of publications during each academic year. This was because he was clearly aware of the disadvantages of having a first degree that graduated from the second batch of undergraduate in the job search. Thus, he considered that carrying out value-added work experience could narrow the gap with others.

In addition, variation was found between participants with and without prior work experience, in terms of how they were beginning to form an emerging academic identity and what might influence their approaches in investing in personal development during their doctoral study. This was clearly reflected in the way that participants with prior work experience showed even stronger expectations and motivation to complete the goals they had set in order to align to their chosen job:

"Since I decided to go for an academic career, I have to do more and do it better than others. If I can't complete each task on time, how can I finish my study in the required time frame?" (Peter, male, social sciences student)

It was clearly shown that these students' strong intentions to remain in the HE domain were derived from reflecting on their past experience and relating it to the future. There was a strong sense among participants who had prior work experience of perceiving the importance of reflecting on

their career identity-forming, as they became more aware of their self-concept and intrinsic needs, and began forming specific expectations about their future career.

5.6.2 Gender differences: career commitment and 'employable self'

In addition, the evidence of this study suggests that gender socialisation shaped the social norms and identity for male and female participants, continuing to show their crucial impact on career aspirations and commitment towards developing a career. Obvious evidence is the gendered attitudes and behaviours in relation to future career plans and perceptions of the 'employable self' in the labour market.

Firstly, it was clearly shown that female participants were noticeably aware of their role and responsibility in the family on the basis of gendered roles in their culture. Although none of them indicated that they would disappear from the labour market due to family concerns, such perceptions largely influenced their career aspiration changes and commitment to developing their academic career. These perceptions were reflected in the views of female participants expressing their preference to find a tenured post with an HE institution in order to have security and a stable and work–family balance, as explained by Fiona:

"Although I have to bear the pressure of publication, it still remains fairly stable and secure to have permanent work in HE rather than a job outside academia …" (Fiona, female, social sciences student)

While the reasons given to develop a future career within the HE domain remained fairly similar to other occupational choices, most female participants rated age as the primary concern. It was clearly shown that some female doctoral students did not feel that they had enough job security to work outside academia, because when they completed their doctoral study they would be aged around thirty. On the one hand, the reason why they were concerned about their age was attributed to some of them having always been students, so they perceived that it would be a rational choice to be employed somewhere that they were familiar with, rather than choose an alternative career. On the other hand, concerns were related about some personal reasons, such as a pregnancy plan and sense of crisis after having a baby. Such sentiments also meant that they perceived the academic work setting as providing them with the maximum tolerance, because the age-limit for new PhD-holders applying for academic posts is thirty-five. Compared to the specific requirement on age, publication was seen to be more relevant for competition for academic positions. In addition, there was a strong sense among female participants that the academic work

setting was more likely to provide them with flexibility of working hours. This was explained by Hazel, who had intended to pursue a career in industry, but whose career aspirations changed when she started a relationship:

"When I studied for the master's course, I imagined myself becoming an R & D engineer in the field of industry. But since I've started a relationship, what I think about is securing stable employment which is likely to provide flexible working hours. Therefore, I hope I can find a job at the university, so that I could have enough time to look after family and children." (Hazel, female, science student)

This viewpoint was also echoed in Emma's responses. Although she was really interested in pursuing a future career as a games developer, she gave up due to family concerns:

"I heard from my friend who works in a game company that he is always required to work overtime … It's quite normal to work until midnight." (Emma, female, social sciences student)

This family-unfriendly working environment largely shifted Emma's career aspiration away from her own personal interest towards focusing on an occupational choice more likely to provide enough flexibility to maintain a work–family balance. However, there were few cases like Emma, as most female participants in social sciences indicated that they would like to be employed in what they were familiar with, rather than to jump out of their comfort zone.

Interestingly, doctoral study is a critical period in which gender attitudes and behaviours towards personal investment intensify. It was clearly shown that female participants particularly described that they did not see enough cases of people working in a research-intensive university being able to keep a good balance between work and family. It is evident in Daisy's responses, as she reflected on her initial thoughts of pursuing a research career when enrolling for her doctoral course, but then she shifted emphasis towards a teaching position because she did not want a lifestyle like that of her supervisor:

"I found that my supervisor is busy and that he quite often needs to go on business trips for research projects. Therefore, his wife could only look after the parents and children on her own. I hope I could have enough time for my family, so I might take a teaching-oriented job." (Daisy, female, social sciences student)

As a result, most of them indicated that they would be more likely to consider developing a future career as a lecturer with a teaching emphasis, or that they might not work in research-intensive universities. In similar, it is clear from other female participants' responses that family concerns not only shifted their career aspirations, but also influenced the sense of commitment towards

investing themselves to align with their chosen occupation. Tina talked about the reasons why she gave up applying for CSC-funded overseas study:

"I know this is a rare opportunity, but I need to take my small family into consideration. I feel that a long-distance relationship is out of the question, especially since my husband and I are a newly married couple. My husband is working for the government, and it would be quite difficult for him to apply for an overseas visit. I don't expect to go to 'Project 985' or 'Project 211' institutions, so an overseas studying experience is not really important for me. I think that more publications and enhancing my teaching skills are more relevant for competing for my chosen role." (Tina, female, social sciences student)

The previous evidence clearly shows that the dominant future employment concerns among female doctoral students in this study were age and pregnancy plans. Such concerns were also evident in the sense of perceiving their 'employable self' in the labour market. It was clearly shown that female participants mentioned that their stress came from the tight time demands of doctoral study and the pressure of publication, so most of them considered that it was a rational choice to postpone pregnancy and childbirth plans while studying. However, this sense of crisis was likely to be reinforced by the perceptions of gender roles and responsibilities of women in the family, as described by Yvonne:

"*Because it [doctoral study] is really hard, I have to postpone my pregnancy plan. I am worried about whether my future employers would be unfriendly because of my pregnancy plan once I take on a job. But as you see, when I complete the doctorate, my age is there." (Yvonne, female, humanities student)*

This quote reflected the certain negative impact on Yvonne's self-confidence in perceiving her 'employable self' in the job search. She further expressed her concerns about only taking a postdoctoral job if she could not secure a tenured post. For most, postdoctoral jobs were interpreted as short-term, intensive, and without maternity covered, which was unlikely to achieve a work–life balance.

However, it is clear from male participants' responses that they showed stronger intentions to obtain extra value-added experience and skills to secure academic posts in research-intensive universities or better career prospects. Male doctoral students did not feel compelled to take postdoctoral jobs after graduating with their PhD. Some of them in particular explained that career advancement was their first plan rather than obtaining a tenured post. Thus, they considered that having certain postdoctoral experience was a good opportunity to enhance their research competencies, publication and insights, which would in turn contribute to future career progression

in an academic career with a research emphasis. In addition, it was clearly shown that male doctoral students in science and engineering indicated much stronger intentions to pursue postdoctoral positions abroad than those who studied in humanities and social sciences.

When asked questions about future career plans, it was clearly shown that female participants were very concerned about the family-friendliness of their occupational choices. Only three married male participants talked about concerns in relation to geographical location and their wives' career needs, and other male participants were not at all concerned about these issues. For married male students, a certain gendered stereotypical view was still seen in relation to gender roles and responsibility in the family, as described by Alan:

"My father-in-law was the captain of a ship. So it was always my mother-in-law who had to look after the family. Because of that, my wife supports me in pursuing career advancement. She always said to me that only I need to pursue my career and she would look after the family …"
(Alan, male, engineering student)

Only one male participant indicated that the 'two-body problem' somewhat troubled his job search and career decision, because his wife was a doctoral student and also expected to work within the academic field; nevertheless, his wife sacrificed her career needs in order to seek a work–family balance.

5.7 Understanding and mobilisation of psychological capital

5.7.1 Equipping oneself with coping strategies to adapt to challenges

Although the participants were at different stages of their doctoral study, there was a widespread sense of the importance for PhD students to equip themselves with coping strategies in order to adapt to challenges in the face of current intensive study or future uncertainty.

Most participants said that the first year, especially the beginning of their doctoral course, was the most challenging period for them to adapt to the intensive PhD life. This perception was particularly reflected in the responses of participants who changed their specialism or research focus. As described by Hazel, her first-year experience was about confusion and anxiety:

"I changed my focus from biology to chemistry, which means that I have to face more challenges than students who keep studying the same specialism. So I felt confused when I entered the doctoral course, because I didn't know where I could start, and most of the fellow students had

already started their work in the lab. I felt really nervous around that period." (Hazel, female, science student)

Likewise, Isabella explained that she did not have any experience of writing research proposals or academic papers, so she felt confused and nervous when she was informed that doctoral students had to complete three publications for graduation. In addition, she was asked to submit her research proposal on starting her PhD study, which led her to feel even worse, having insomnia and certain depressive symptoms. A similar experience was also reflected in Charlotte's responses, but she felt the solution was to find a way to quickly accommodate to doctoral study:

"I was confused when I first started the doctoral course because I had changed my specialism. The quick solution is to find the right people to ask questions. So I asked my supervisor and some senior students for help. They recommended me some textbooks to read. Then I found that I quickly adapted to my doctoral life." (Charlotte, female, social sciences student)

In Charlotte's perception, the solution was to be an active participant in social interaction, to enable her to find out how the sources could contribute to effective participation. Although most participants mentioned that they received certain academic support later on from senior students in their field, they did not know how to access the proper resources and support when they started. It appeared that shyness and a lack of support might be possible explanations. Strongly implicit in participants' responses was that they felt too shy to express their needs to a supervisor, and in their perception a supervisor was unlikely to help them to address certain mental issues. This perception was reflected in Mike's response:

"I am an introverted and rather shy person, so I am not really good at expressing my needs. To be honest, I feel that I have certain depressive symptoms, because I have had insomnia for a couple of months. I have spoken to my parents, but they couldn't understand why I am so nervous. I won't talk to my supervisor, because he is an expert in academia rather than a psychology therapist." (Mike, male, social sciences student)

The evidence of this study shows a certain number of participants with slight depressive symptoms in the first year, but few of them were able to receive mental and emotional support from the university, or from their parents either. Thus, there was a sense among participants that a positive psychological state played a much more crucial role in adapting to current intensive PhD study or future employment.

In addition, there is strong evidence that participants who gained prior work experience were more likely to demonstrate a higher degree of adaptability in quickly implementing coping strategies to help them with their intensive doctoral study, because they set goals. They had a clearer sense of

what they needed, and had more goal-directed initiatives to ask for help. As the following evidence shows, Peter showed stronger goal-directed initiatives to ask for support from people in important roles, so he was more likely to receive better-informed insights and information to access appropriate learning resources and training opportunities, which largely facilitated his ability to accommodate to PhD study in a short time:

"I set up several tasks in each academic year. For example, I set a goal to publish my first paper in my first year, so I asked my supervisor for help in terms of how to write a paper and choose which journal to publish my paper in." (Peter, male, social sciences student)

When asked about future employment, the evidence of this study shows that participants who gained relevant work experience aligned to their chosen or target occupation were more likely to feel highly confident in adapting to future employment. It was clearly shown that participants perceived that working as teaching or research assistants enabled them to learn more embodied capital to work in academia and become more aware of any weakness to be improved. It is clear from the responses of some laboratory-based students that they were aware of lacking certain teaching skills in giving lectures, and thus they felt that gaining relevant work experience enabled them to adapt to a new job smoothly, as described by Finnie:

"Even though our discipline is based on lab-work, I would like to take an academic position, I might teach undergraduate and postgraduate students. I am really shy and used to be afraid of speaking in public. But after working in a teaching-related job, I feel I became more confident in standing in front of students. In addition, I learned lots of teaching skills from my supervisor. I believe that having this relevant work experience could help me adapt favourably to an academic teaching job." (Finnie, female, sciences student)

5.7.2 Resilience in the face of challenge and setback

When asked for views on their resilience in a future job search, most participants felt that they gained resilience through completing publication and dealing with publishing issues during their doctoral studies, even though they had not yet started their job search.

The evidence of this study suggests that most participants considered the completion of three published papers during their PhD candidature as a challenge. Participants expected to complete their PhD in the required time frame; however, many of them saw that the requirement of completing a certain number of publications before their viva resulted in numbers of senior students extending the normal graduation time:

"Because those students had completed their doctoral thesis without completing the required number of publications, this delayed their move into the final viva process." (Vincent, male, social sciences student)

The biggest concern was that universities would only acknowledge published papers, rather than ones that had been accepted and were waiting to be published. However, it was shown in some disciplines that there were few opportunities to publish papers on time. This perception was reflected in the responses of participants who studied in journalism and advertising, as there are only four core journals in their field, meaning that competition for publication was much more intense. They perceived that competition for publication was not only among students, but also with academic staff in the same field. Such concerns further influenced their confidence in perceiving whether they could complete a PhD in the time frame and how they might maintain their resilience in the face of much adversity arising from publishing rejection. This issue was reflected in the responses not only from the social sciences students, but across all disciplines.

It was clearly shown that students responded differently to dealing with completing publications during their candidature. The data indicated that participants with a more positive mindset were more likely to prove resilient and to have coping strategies to withstand the challenges and setbacks associated with publication. As the above evidence shows, most participants felt difficulties in accommodating to a new environment and more intensive PhD study in their first year. It was found that students with a relatively positive mindset were more likely to adapt smoothly to the new studying environment, and were able to be more proactive and engage in participating in research training and relevant activities to advantage their publication progress. This change was typified in Isabella's case, who had certain depressive symptoms in her first year due to the challenges:

"Since adjusting my mentality positively, I found I could engage in reading textbooks and having training classes, which help me engage in learning how to write papers." (Isabella, female, humanities student)

It is evident in the face of the first paper rejection that participants with a more positive mindset demonstrated a quicker response in finding out the reasons why the paper had been rejected, such as writing emails to editors and asking their supervisor for help. Only a few said that they were stuck in paper rejection and had no idea of how to continue to go about writing papers. It was shown that most participants gained much resilience from experiencing rejection if they were able to learn from the experience, thus they felt confident in the face of the potential publication-related anxiety, such as the long length of the review process, with revision and rejection.

Many participants mentioned that they had not yet considered their job search, so one question was 'How would you deal with the potential challenge and adversity in the future job search?' It showed that the 'two-body problem' appeared to be a 'reality shock' in the labour market, as there was no solid answer. The main issue mentioned by these participants was how to accommodate their partner's career needs, especially for those married couples who both expected to work in academia. In Evan's case, he felt anxious about dealing with the dual dilemma issue in the job search, because both he and his wife were PhD students and wanted to work in HE. Some job opportunities were extremely interesting and matched his subject area, but there lacked an opportunity to find a satisfying job in the same geographical location for his wife, a social sciences PhD. Evan considered joint employment, but all of that bargaining was about securing a potential place for his wife, rather than securing for himself the best conditions in the place he wanted:

"I am also thinking about joint employment, but I find that my career prospects might be limited in where could provide me with this. This is because dual employment might limit my starting-up funding in doing research projects and my access to other resources, as well as job promotion."
(Evan, male, engineering student)

Some participants also mentioned the 'two-body problem' in the interview. However, they were not yet actually in the job search process, so their discussion was still around imagining how potential issues (e.g. geographical location, children and pregnancy) would have an impact on their decisions.

5.8 Summary

The qualitative analysis in this chapter presents the social construction meaning of employability by Chinese doctoral students. The findings suggest that the doctorate has become the access rather than the relative positioning in highly skilled occupational fields, therefore these students perceive the necessity of equipping themselves with more player tactics to obtain advantages over others in competing for a limited number of professional jobs. They positioned themselves in the labour market because they understood that the rule of the graduate labour market was based upon a positional game. While the perceptions and actions were diverse, there were several significant themes indicating how they obtained their relative positioning over others, as summarised by the following:

- University brand: their institutional profile was perceived to influence the relative positioning in the graduate labour market, because it might determine access to

opportunities and educational resources. This study highlights the value of a degree awarded by a prestigious university, such as a 'Project 985' or 'Project 211' institution.

- Relative performance: they needed to achieve a relative academic performance over other PhDs, which is closely related to their selection of career pathway and the demands of the chosen or target occupation.
- Right signals: they had to know what knowledge, skills and performance employers want in highly skilled occupational fields.
- Always improve: they had to have agency in responding to the demands of their own employability development.

In addition, these findings offer a more complex picture of how graduate capital is purchased and utilised in the early stages of labour market negotiation, and how different forms of capital feed off and enrich each other. Although participants might not say the actual names of the forms of capital when interviewed, they realised the value of the key resources relating to each form of capital, as summarised by the following:

- Human capital: Chinese doctoral students developed certain occupational-specific human capital that aligned with the highly skilled employment they wanted. It was found that they developed certain soft skills which aligned with their chosen occupation; however, only a few of them were able to use it as an employment signifier.
- Social capital: they capitalised on their social relations and networks to enhance their early stages of labour market knowledge. It was found that they were more likely to use strong ties rather than weak ties. It was also found that different disciplines' study climates and supervisors' career guidance might influence their networking behaviours.
- Cultural capital: they developed certain embodied capital which aligned with that of academics. They were also clearly aware of standing apart from others by adopting more player tactics. This is because they largely developed this cultural-valued knowledge during their PhD study. However, the value of this cultural capital might be blunted because most of them shared similar cultural resources on how to get a job in academia.
- Identity capital: those students with an emerging academic identity were more likely to engage actively in early stages of career exploration and investment to align themselves with their chosen occupation. Gender differences were also found in the formation of identity capital, because family concerns might influence female doctoral students' career aspirations and commitment towards developing careers.
- Psychological capital: they equipped themselves with certain coping strategies to adapt to challenges and setbacks during PhD study. However, they were not yet in their job search,

so whether they had the capacity to adapt to a fluid job market and withstand challenges was still unclear, although they felt that they had gained enough resilience through past experience.

In addition, it was shown that they developed certain forms of capital to benefit their own employability management and career-readiness, as summarised in the following aspects:

- Human capital: developing occupational-specific human capital to become professionals, and being confident to access their chosen or target occupations.
- Social capital: developing social relations and networks to enhance labour market knowledge and to help open up opportunities to obtain access to the target labour market.
- Cultural capital: appreciating the culture of the target occupational context and being able to present themselves in a credible way to align with their target occupation and to stand apart from others.
- Identity capital: emerging career identity and developing strategies to accomplish their goals towards their target occupation.
- Psychological capital: equipping themselves with coping strategies and a positive mindset to adapt to challenges and pressures.

What is more, the study has shown that their formation of types of capital might be influenced by demographic and biographic variables, such as gender, parental influence, discipline and work experience. This qualitative analysis does not aim to generalise findings across the Chinese doctoral population, so it would be interesting to explore these demographic and biographic variables in future research. In addition, the focus of this study was to explore Chinese doctoral students' perceptions of their employability and the labour market competition, not what the graduate labour market would be in reality. Their perceptions might be adjusted after starting their job search or entering the labour market, so it would also be important to explore their views in further empirical analysis.

Chapter 6 Discussion

6.1 Introduction

Drawing upon the quantitative and qualitative findings, this chapter aims to discuss the ways that Chinese doctoral students socially constructed and managed their employability and forms of graduate capital to approach their wishes and aspirations in the labour market.

This chapter is divided into three parts with three overarching research questions. It starts with a discussion around the conceptualisations of the labour market competition and employability within their social context. Then it assesses how these students purchased and took advantage of the key resources related to each form of capital in negotiating the labour market challenges and uncertainty. The final part discusses the influencing factors which impacted on their self-perceived employability. The key findings of this study highlight the power of graduate capital as it has a crucial impact on students' self-perceived employability and also mediates the relationships between demographic variables and self-perceived employability.

6.2 Conceptualisations of labour market competition and employability

The first research question was 'How do Chinese doctoral students perceive their own employability and the scope of the labour market?'

Drawing upon the mixed data, one contribution of this study was to provide an understanding of the social construction meaning of employability by these students. The quantitative analysis provides a descriptive overview of their self-perceived employability, which connects their self-perceptions to the fields of subject studied, university brand and the state of the external labour market. The qualitative analysis went some way further with this understanding, by highlighting the positional competition in the labour market in which this study is located. It is seen that positional competition has become the most common feature in competing for jobs, therefore these students perceive that they have to equip themselves with more player tactics to obtain advantages over other PhDs. A limitation has been acknowledged that they were not yet in employment when interviewed, thus, their perceptions might not be the best judge of what the labour market would be in reality. However, an analysis of their reflections, perceptions and actions still remains insightful as it offers a profound understanding of the way in which they socially construct and manage their employability.

This section is divided into two parts. The first part discusses the construction of labour market competition, with an emphasis on how positional competition is set up, what these students thought about it as a positional good, and how it might influence them compared with the competition. The second part mainly discusses the way that they socially constructed and managed their employability in a positional game, with the emphasis on discussing how the positional competition facilitates students within their social context in making their choice in response to the competition.

6.2.1 Construction of labour market competition

The findings of this study highlighting the relationship between educational and occupational contexts are an important factor influencing how positional competition is set up. It serves as a background enabling Chinese doctoral students to make sense of the rules of the graduate labour market. According to Tholen (2014, p.14), 'the educational context does not merely provide information about what is or will be of value in the graduate labour market but helps to define the general rules of competition.' Consistent with this argument, the findings of this study indicate that the Chinese HE system continues to organise the graduate labour market competition at the national level, which shapes an intersubjective framework for how doctoral students perceive the graduate labour market, in terms of awareness of the opportunity structure, understanding the value of the positional goods in the labour market and their influences over the competition.

6.2.1.1 Value of the degree

One of the most fruitful aspects of this study is contributing to an understanding of the value of degrees in the positional competition within the social and labour market context in which these students are located. There are many critiques raised in the literature because it is not always clear what a degree could symbolise and what its function could represent as a mean of access to types of jobs in the graduate labour market. According to Berg's (1970) classic study of education and jobs, he discussed the growing use of credentials in 1960s America as the 'great training robbery'. In a similar vein, the credentials in China, especially the research degree, have largely been used by graduates for getting jobs since its expansion (Kuang and Liu, 2006). In line with previous studies (Brown and Souto-Otero, 2018; Tholen, 2017), this study argues that credentials still play a crucial role in the graduate labour market. However, HE expansion and its inflationary effects weaken the

value of having a master's in the graduate labour market, which exerts an impact on Chinese doctoral students' understanding of the way to construct the job competition.

Clear evidence is shown in this study that a doctorate was regarded as a necessary condition for competing for certain professional employment and for continuing to signal relevant work preparation aligning with certain opportunity structures. On the one hand, the universal perspective was that doctoral credentials are becoming the norm for many of the research roles available in certain occupations (Tholen, 2017). In Tholen's (2017) study, he found that individuals cashed in their human capital investment for a PhD degree where this provided certain specialised and intensive training, which could be treated as an alternative to, or an extension of, relevant work experience for the research roles. Consistent with Tholen's findings, evidence was found in this study that some participants would not be able to get above a certain level of position in the industry field if they did not have a doctorate. On the other hand, the value of a doctorate could be linked to the strategies employed in the contemporary economy. As the strong economic emphasis of policy connects to the changing nature of the labour market towards a knowledge-driven economy, doctoral students have invariably been positioned as key players on the national economic stage, whose role and input in the labour market are of huge importance (Group of Eight, 2013; OECD, 2010; Tomlinson, 2017b).

On the contrary, the value to these students of a master's was it did not pay off their expectations and investments. The evidence of this study clearly shows that their initial views on the value of the degree were more in line with what human capital theorised, as they expected to receive certain incentives for human capital investment. While the use of a master's to search for jobs in the research field was not very useful within their social context, it is suggested that the lower value of a master's in the graduate labour market might be attributed to macro and micro levels. At the macro level, this issue was related to the expansion of HE policy in China as the government set up certain controls postponing the age cohort for entering the labour market in order to ease domestic employment pressures (Kuang and Liu, 2006), which in turn resulted in growing numbers of master's and doctoral students crowding into the labour market. In addition, the qualitative analysis of this study showed that students found that employers increased the demands of their jobs, which led to the credential closure becoming the real issue organising the route into highly skilled occupational fields. At the micro level, it gave an understanding of students' personal intentions and what they thought about their choices that made sense. The qualitative analysis showed that the biggest barrier for most of the students was that they had always been students. Therefore, they might follow the crowd, or take a defensive strategy when they made choices, which made the link between educational context and occupation rather nebulous. In addition, it was clearly shown in both the quantitative and qualitative data that having a research degree study largely

facilitated students' occupational selections and intentions to go for future professional employment. Therefore, the value of having a doctorate became a means to align with the occupational field of their choice in the labour market.

What is more, this study found that university education portrays certain roles as influencing how Chinese doctoral students made sense of the value of the degree in the graduate labour market. Some graduate studies (Strathdee, 2005; Tholen, 2017; Tomlinson, 2017a) suggested that formal education was seen to be the key deliverer of knowledge and skills for graduate occupations but might not be adequate for them to work in the job. As Tomlinson (2017a) argued, the formation of occupation-specific human capital remains important for graduates' employability, while university-acquired human capital in many cases suggested a looser relationship with future employment. For the most part, it was clearly shown that participants thought that university education at master's level did not provide them with full preparation to work in a professional role, but was more a general grounding. This might be why, in this study, the acquisition of subject knowledge and skills from university education at master's level did not provide much help in getting to grips with their first job. In contrast, the findings of this study highlighted that the value of the doctorate was attached to the occupation-specific human capital, which contributed to occupational selection and its opportunity structure being much clearer than for students at the other level of the degree study.

6.2.1.2 University brand

Consistent with previous studies (Rothwell *et al*., 2008; Rothwell *et al*., 2009), both quantitative and qualitative analysis highlight the fact that the university brand plays a crucial role in shaping the labour market competition. The qualitative analysis delves more into this topic, presenting the stratification of universities as reflecting the graduate labour market opportunities of Chinese doctoral students, which still have their own set of rules.

In light of what Cuthbert and Molla (2015) rightly proposed as a 'PhD crisis discourse', it seems inevitable, with more and more qualified PhD holders applying for limited academic positions or highly skilled employed roles, that doctoral students would seek to differentiate themselves from others in any way they know. The findings of this study suggest that the university reputation game is played out in a mass system, therefore those embodying the right form of being and doing are the best positioned to secure a competitive labour market advantage. While the game played in a Chinese context depends on the highest credentials of the university attended by students, it also depends on the reputation of their first degree institution. It has been seen that academic closure

in the graduate labour market operates on the basis of two academic degrees: bachelor's and doctorate degrees. Similarly, this double academic closure phenomenon is found in an Asian study. Kim (2016) found that the hierarchical academic origin in Korea, referring to the origin of individual candidates' bachelor's degrees, has become more important in the selection process of faculty employment. Kim (2016) suggested that the significance of the origin of one's bachelor's degree in the Korean culture is because social networks between individuals and faculties are formed through the origins of their undergraduate course. It was clearly seen that Korea has the most conservative and discriminative membership in academia. As a consequence, interpersonal relations in the workplaces are tight (Kim, 2016).

But like Kim's finding, the evidence of this study suggests that the double academic closure in the Chinese context is more complex. Firstly, it was seen that the hierarchy of academic closure is closely influenced by the way that government promotes the development and reputation of the HE system. It was clearly shown that participants in this study recognised that a 'Project 985' institution degree would be able to bring them more labour market opportunities in the domestic labour market. This is because 'Project 985' institutions have received large amounts of funding from both national and local governments. This funding has been used for building new research centres, improving facilities, holding international conferences, and attracting world-renowned faculty and visiting scholars, all aimed at promoting and developing world-class universities in China. For instance, Peking University received the highest amount of funding sponsored by 'Project 985' amongst 39 universities, with RMB 1.8 billion. As such, most of the 39 universities in 'Project 985' ranked in the top 500 universities in the world, according to the Times Higher Education World University Rankings 2019/20. In contrast to 'Project 985', 'Project 211' sponsored more universities, but the aim was to deal with the national HE priority. There might be a similar effect in line with the brand image of the university in employers' perceptions as suggested by Murray and Robinson (2001, p.140), 'There is strong evidence that large-scale recruiters of graduates target a limited range of universities.' As a consequence, studying at a more prestigious university, graduates are more likely to approach their wishes and aspirations during the mutual selection process. In addition, employers place more emphasis on 'the best' since the great expansion, so that doctoral students with a good institutional profile presented more self-confidence when faced with labour market opportunities.

In line with the emphasis on 'the best' cited in much of the human resources management literature, this study suggests that the origin of one's bachelor's degree is significant, because it has been widely used to justify 'the best' graduates in the Chinese labour market. One reason might be because China has very a strong examination-oriented culture, so that an individual's merit is largely reflected in the type of university they attended for their undergraduate course. However, the

emergent trend of global graduate competition has led to conflicts about the established hierarchy of academic closure in the local context, whereas few participants in this study expressed a sense of wider sections of the labour market. More precisely, a prestigious institution degree perceived by doctoral students in this study was from a 'Project 985' or a 'Project 211' institution. Nevertheless, since the 'Double World-Class Project' replaced 'Project 985' and 'Project 211' in 2015 (Zhao, 2018), it is worth considering whether the new way of ranking influences the positional competition. In addition, the focus in the Chinese context elaborates on how government intentions and actions exerted a significant influence on graduates, the HE sector and the labour market. Thus, it is worth considering the political dimension of the graduate labour market in researching the Chinese context.

6.2.2 Construction of employability in a positional game

The mainstream view is that the knowledge-driven economy has strengthened individualism, in which positional competition is strongly exemplified based on the competition for credentials (Brown and Hesketh, 2004). Yet, as more and more contestants enter the labour market with the same credentials, the value of a doctorate declines as a positional advantage. Thus, it is suggested that any type of credentialism is partial and contextual (Tholen, 2017). Brown and Souto-Otero (2018) viewed credentials as a direct signal in the labour market. In contrast, evidence suggests that the positional competition in this study is not based on the competition for credentials, because the inflationary effect is across the entire graduate population.

In addition, this study indicates that Chinese doctoral students were aware of adopting more player tactics to respond to positional competition. It was seen that their player characteristics reflected their way of constructing and managing their employability.

6.2.2.1 Player tactics

In addition to university brand, there is strong evidence suggesting that these students understood the labour market competition as a positional game, whereby they have to adopt more player tactics to construct and manage their employability. Consistent with Brown and Hesketh (2004) who define what players are, this study highlights Chinese doctoral students adopting player tactics in their construction of the positional competition. On the one hand, the findings of this study show them recognising that they have to present themselves in ways that conform to the requirements of the highly skilled occupational field. However, there is evidence to suggest that they understood

the need to present themselves in ways that showed their genuine personal qualities to prospective employers. This is more in line with Brown and Hesketh's (2004) definition of the players. It is believed that this might be because of the strong link between HE and their target occupation. Therefore, they had a strong sense of using the right signals (i.e. publications, research competencies and skills) to sell themselves, in order to obtain advantages over others.

On the other hand, the evidence of this study highlights the fact that these students were willing to package themselves as the situation requires. It might be explained by mass HE at the elite end of the labour market, leading more of them to think about the importance of adopting player tactics. As defined by Brown and Hesketh (2004), the players believed that they were in a competitive situation but wanted to be true to themselves, while constructing their narratives to align with the chosen occupations. As discussed earlier, the parameters of HE shape the positional competition within the social and labour market context, which results in students without a bachelor's from a prestigious university possibly losing their relative positioning in the contest. The analysis of this study suggests that with the growth of mass HE, some students with pursuit tactics might resort to being players because they viewed their task as conveying their employability and promoting themselves with elite employability. This is also clearly reflected in the evidence that most of them were willing to package themselves in the way that aligned to the situation required, such as attending a prestigious university, having a certain number of quality publications, to add value to their credentials in order to get a job they want.

In contrast to the gender difference identified by Brown and Scase (1994), the findings of this study suggest a different picture in terms of how the female students understood and managed the positional competition. It was clearly shown that they were most likely to mobilise different form of capital to help them align to their chosen occupation. However, family concerns had certain impact on the way they constructed and managed their employability, such as participating in early career events and making human capital investment for themselves.

6.2.2.2 Internal–external employability

Consistent with the theoretical rationale for pursuing the two components within the employability scale (Rothwell, 2007; Rothwell *et al*., 2008; Rothwell *et al*., 2009), the quantitative results showed a fairly clear split between the 16 items produced by a two-factor solution. The first component related principally to Chinese doctoral students' external aspect of self-perceived employability, consisting of their perceptions of their university's brand, the university's reputation in their field of study, the status and credibility of their subject, and the state of the external labour market. The

second component relates to their internal aspect of employability, associated with their self-confidence and awareness of opportunities in the graduate labour market. According to Rothwell (2007), this distinction in the self-perceived employability scale could be considered a very useful diagnostic tool for career development and guidance, as it contrasts two forms of employability. Given the concerns about employability development in this study, the internal–external split would be useful for the students themselves, as it could help them to be aware of where they are now and to focus on this issue as the most pressing.

In addition, this study highlighted the strong and positive correlation ($r = .619$, $p < .000$) between external and internal employability related to Chinese doctoral students. This result might reflect some similarity of evaluative criteria for two forms of employability when assessing the perceptions of the student sample who were not yet in employment. However, two previous studies (Rothwell *et al*., 2008; Rothwell *et al*., 2009) suggested that the correlation between the two aspects of self-perceived employability was statistically significant but not especially high: undergraduate study was .192, and postgraduate study was .382. Firstly, the fairly clear career pathway and trajectory for PhD students might explain the strong and positive correlation between the two forms of employability in the student sample. In light of the social context where they were located, they were specifically trained for continuing to go towards research and academic routes. As discussed earlier, the two forms of employability also presented a fairly qualitative similarity in the way in which Chinese doctoral students adopted certain player tactics in order to be responsive to employers' demands. This is because they thought that what they had learned from their doctoral study was closely related to their target or chosen occupation domains. Therefore, they were clearly aware that playing the competition in today's labour market was not only based upon obtaining a positioning relative to others, but also played out in relation to how well they obtained advantages over others by using the right signals. It might also explain why they had certain correct signals about obtaining relative positioning over others that contributed to their self-confidence being boosted.

Interestingly, even with the two forms of employability showing a strong and positive correlation, these students' external aspect of employability was still significant higher than their internal aspect ($t (466) = 5.222$, $p < .001$, one-tailed). Specifically, the quantitative analysis indicated that there were nine items in the self-perceived employability scale referring to external employability, and seven items representing the internal aspect of employability. Rothwell (2007) reported the same issue in his previous empirical work when assessing the professional sample's self-perceived employability. Regarding this result, he believed the reason might be attributed to the fact that the majority of items in the self-perceived employability scale, which he designed for the professional sample, referred to external employability, so the overall score of the external aspect reflected that

more strongly than internal aspect of employability (Rothwell, 2007). However, it appears that the number of items loaded on external and internal dimensions in this study was not the main reason for the mean score of these students' external employability reflecting more strongly than internal employability. On the one hand, it is argued that there is no universal reason for stating that external or internal aspects of employability are of equal importance in any given setting (Rothwell, 2007). On the other hand, it is believed that the way that Chinese doctoral students constructed the positional competition was likely to explain why external aspects were significantly higher than internal aspect of employability. As discussed earlier, it was clearly shown that they made sense of the ranking and rigging in the labour market competition, in which they constructed and managed their employability by using their university brand and the right signals to obtain relative positioning over others. It is noteworthy that the items relating to university brand and the ranking of their field of study had fairly high mean scores on the 16-item self-perceived employability scale.

In addition, the self-perceived employability scale was designed to assess students' self-perceptions of the present and future (Rothwell *et al*., 2008), concerning how well they themselves would be able to deal with a number of circumstances presenting their employability in competing for future jobs. The item 'I achieve high grades in relation to my studies' and 'I regard my academic work as top priority' was designed by Rothwell *et al*. (2008) to assess students' internal aspect of employability, but in this study those two items were more the case for external than internal aspects. This might be explained by this sample not yet being in employment, but compared with undergraduate and postgraduate student sample, they had acquired a relatively high level of occupation-specific human capital. Consequently, this particular understanding of the employability dimension contributed to the items relating to how these students perceived the relationships between university brand, their university in their field of study and the external labour market, which showed a relatively higher mean score and which also reflected in their way of constructing employability in the positional game.

6.3 Mobilising graduate capital to play the labour market entry game

The second research question was to explore the question 'How do Chinese doctoral students understand and utilise forms of capital to play the labour market entry game?'

Drawing upon the mixed data, a contribution of this study was to provide an understanding of how they utilised graduate capital to play the labour market entry game. The empirical-based evidence also delivers insight into their formation and mobilisation of graduate capital, which contributes to understanding how these key resources were purchased and why they were conceived as important

in the labour market entry game. In addition, both quantitative and qualitative analysis added empirical support to Tomlinson's graduate capital model, which highlighted these students mobilising graduate capital to confer advantages on their employability management, and which also showed how the usage of key resources relating to forms of graduate capital could improve the understanding of their self-perceived employability.

This empirical support was highlighted in the quantitative analysis, in which the results of CFA (Confirmatory factor analysis) and the regression model validated the better ability to use the sub-dimension constructs (key resources related to each form of capital) to explain the relationships between forms of capital and self-perceived employability. In addition, interview participants for the most part might not be able to name each form of capital, but they knew which resources were important to them and how to use them in making the transition towards the labour market, because those resources were acquired through their own lived experience.

This section is divided into five parts. Each part of the discussion consists of critiques about the key resources that they purchased and utilised to empower their employability and make sense of the way to play the labour market entry game. However, the key finding of this study also highlights how they understood and responded to ways of developing and enhancing their graduate capital differently, because it was part of their own employability management.

6.3.1 Developing occupational-specific human capital to align with the target occupation

This study highlighted the most valuable aspects of human capital resources for Chinese doctoral students as doctorate credentials, specialist discipline knowledge, research-related knowledge and competencies. They are occupational-specific human capital, conceived of as employment signifiers to help to align with the target occupation.

As discussed earlier, this study suggested that the link between educational and occupational contexts shapes how the positional competition is set up in the graduate labour market. It is suggested that the value of a PhD has been strengthened by the stronger link between the two contexts. Contrasting with the argument by Brown and Hesketh (2004) suggesting that employers place increasingly less emphasis on academic credentials, this study found that this perspective is partial, as it depends on the occupation and the context. In a recent study, Brown and Souto-Otero (2018) found that the majority of UK employers do not present credentials as a differentiating factor, as they place greater emphasis on 'job-readiness' rather than selecting by degree, although they suggested that higher status jobs are more likely to require a degree than other occupations. Some

evidence suggested that professional occupations require a higher qualification than managerial occupations – which are nearly equivalent to associate professional level (Brown and Souto-Otero, 2018). It could be argued that formal education credentials might be treated by employers as an imperfect proxy for 'job-readiness', but a PhD in the labour market at least can still be seen as a powerful human capital descriptor, encapsulating a certain kind of discipline- or field-specific knowledge and research abilities. Therefore, the reason why these students gave priority to having a doctorate credential as constitutive of their employability was not simply in line with the numerous credentialism studies arguing that the role of selective credentials could help to differentiate them from non-graduates, but that it could also be used as an initial filter for reaching the requirements of highly skilled employment, as doctoral students in policy terms are resourced and governed with more human capital than other education levels.

Consistent with previous studies (Pham *et al*., 2019), this study found that how much university knowledge and skills students could apply to their future jobs varied, depending on the nature of the occupational context. This study highlighted more specific connections between students' degree-level learning and the demands of the target occupations. Given the research-oriented background of PhD graduates, this study found that the reason why Chinese doctoral students placed heavy weight on acquiring specialist subject knowledge, research skills and publications was because these academic performance and achievements, developed and enhanced during their doctoral study, were much more tailored to the demands of the target occupation, such as academic and R & D positions. It was also found that occupational-specific human capital made a unique contribution to all the regression models performed, while master's education was insufficiently associated with the actual requirements and developments of professional occupations within the domestic context. This study found that many of these students considered that their master's studies only provided the foundation of research knowledge and competencies. It was also understood that a master's course did not give them enough breadth or depth to deliver a thorough preparation for highly skilled employment. This is not to state that there is no value in taking a master's, but that all students who had a master's were very modest about its contribution to their professional development in the research field. Although this study focused on their perceptions of self-perceived employability, their reflections of previous educational and social experience provided much meaningful understanding for thinking about the relationship between education and labour market advantages relating to one's own human capital development. Particularly, the mainstream route of accessing a doctoral course in China is still to take a master's first. Thus, how knowledge and skills could be better aligned to students' specific professional field development is still a question for research-oriented education within the mass HE context.

Maintaining and developing academic knowledge and research competencies is important for developing a career in the target occupation. This study also found how these students perceived that the weight of soft currency varied, depending upon their disciplinary areas and the skill demands of their target occupations. Consistent with the findings of Jones (2009), this study found that the discipline paradigm had an impact on their acquisition of soft skills during their doctoral study. This is because they had to engage in certain kinds of research project or learning environment with others, which enabled them to claim that they were suitable and credible in those areas. Interestingly, the quantitative data suggested that they reported a fairly low level of soft skills among three human capital resources, while the qualitative evidence found differently. This might be because the soft skills they formed were a kind of embodied capital aligning with their target occupation. In addition, the qualitative evidence suggests that only a few students saw the value of soft skills to help them align with their target occupation.

6.3.2 Capitalising social relations to enhance labour market knowledge

This study highlighted the fact that Chinese doctoral students were aware of capitalising social relations to play the labour market entry game. While most of them had not yet started their job search, it seems that this early form of socialisation enhanced their labour market knowledge.

Consistent with Granovetter (1973), this study found that capitalising social relations largely facilitated the information flow, bridging the gap between education and the occupational context they expected to enter. However, the evidence of this study suggests that they indicated a preference to utilise strong ties rather than weak ties in an attempt to get certain information or career support. It was shown that most of them had always been students, so they were more likely to rely on strong ties to equip themselves for job market knowledge and information. Given that strong ties are often infused with an intense sense of obligation, commitment and trust that makes people willing to spend time, effort and social resources to help others, some previous studies suggested that this might explain why first-time jobseekers are more likely than other jobseekers to rely on strong ties to gain information or look for jobs in the labour market (Granovetter, 1974; McDonald and Elder, 2006; Murray *et al*., 1981). In a similar vein, because most of these students had always been students, they were more likely to rely on strong ties, especially their family relations and resources, to get early knowledge about the nature of the job market.

Consistent with the ideas of strong ties (Granovetter, 1974; Tomlinson, 2018), this study found that strong ties on their own are not always influential, as they were more likely to look for a professional occupation after their doctoral studies, rather than other types of jobs. Relying on family relations

and resources to get job market knowledge and integration was not enough, as there were still numbers of them in this study reporting that their parents had low educational levels or low-skilled occupations, making family ties less helpful for searching for highly skilled employment. Thus, it can be understood that if strong ties have limited job market knowledge relating to certain occupations, or if these students did not know the rules of access, this could indeed be counter-advantageous (Tomlinson, 2018). Although most of the students were not yet in the job search, information obtained from senior students might advance their labour market knowledge, such as employment trends in the disciplinary area, and what research competencies and abilities might be attractive to employers. Therefore, capitalising social relations and using weak ties is of significance in the job search.

Social relations and connections were claimed by many established studies as not easily accessible resources (Tholen *et al*., 2013), which means that they are the ones needing to be created and maintained. In this study, the students were greatly aware of using social relationships to enhance their graduate labour market knowledge, in terms of getting labour market information from family members or student peers, yet they failed to demonstrate enough confidence to talk and create the contacts with those they did not know. Particularly, there was a fairly low rating on the item 'I frequently build contacts with other people who are important for my career development.' Regarding this, the qualitative analysis shows that many students used the word 'awkward' to describe creating conversations with significant ones if they did not know each other. Many previous studies indicated the importance of using a wider span of significant people to enhance knowledge and information about job opportunities and how to access them (Granovetter, 1973; Tomlinson 2017; Tomlinson 2018). Yet not every doctoral student thought that having emerging employer contacts was necessary in competing for academic jobs. It might be explained by the fact that they had already developed forms of cultural knowledge, behaviours and dispositions relating to academic positions, and knew how to make themselves attractive to HE employers. Additionally, this study found that the other important reason might be attributed to structural constraints, such as a lack of chances to have emerging employer contacts outside academia and infused with pursuing a research-oriented career within the institutional context and social surroundings. These influences seemed to have a subtle impact on these students' understanding of the relatively thin spread of social connections in opening job opportunities, and how to access them.

This study highlighted the fact that professional networks seemed prominent for STEM students gaining access to the labour market, especially in opening up opportunities outside academia. Hodkinson and Sparkes (1997) discussed interactions with others in the field, related to the unequal resources different 'players' possess. It was clearly that most of the STEM doctoral students had more chances to take an alternative career than students in other disciplines, due to their

discipline's collaborative paradigm and having more chances to gain access to professional networks outside their discipline community within the institutional context. Unlike UK studies suggesting that STEM PhDs failed to adequately prepare for non-academic careers (Hancock and Walsh, 2014), this study found policy-oriented calls leading to more and stronger collaboration between research-intensive institutions and the field of industry in China, which in turn contributed to STEM doctoral students having more chances to develop professional networks and job opportunities outside the institutional context. However, this finding might only be partial, as this study explored solely one research-intensive university. Yet it was also shown that the role of professional networks seeming to comprise the ways in which these STEM doctoral students utilised their superior human capital and university reputation to signal to potential employers and help them to get access to opportunity as relying solely on social relations and connections was not enough in the elite pool competition.

Except for the discipline's paradigm, this study also highlighted the perceptions of supervisors that priorities and expectations might influence doctoral students' capitalising their social relations and networks. Consistent with a previous study (Pearson *et al*., 2009), this study found that some of the reasons that students gave for lacking professional networks might seem unique to their supervisor's personality and career guidance. In line with Pearson *et al*.'s (2009) study, they found that many supervisors did not appreciate the importance placed on career planning during the doctorate candidature and the need for more than enculturation into the disciplinary community in the scientific field. The qualitative evidence of this study shows that some supervisors did not appreciate the role of attending academic conferences but placed great importance on publication and research competencies. In addition, many of the students that felt their supervisor's opinions were much more valuable than their own, so they should be obedient and follow. This might be explained by the collectivistic cultural value often manifest in a strong respect for and obedience to senior people (Wong and Liu, 2010). Thus, future research is needed to explore supervisors' and other stakeholders' views of the role of social relations and how doctoral students utilise these for career planning and job searching, as they are the significant ones within the institutional context exerting a subtle influence on students' social capital characteristics.

6.3.3 Being able to present oneself in a credible way

As discussed earlier, the current PhD labour market has become the site of a positional competition, where Chinese doctoral students have to compete with those with similar credential and appropriate skills for limited professional jobs. This study highlighted that player tactics (Brown and

Hesketh, 2004) are of strategic value in the way that they capitalise their cultural assets to play a positional game.

The PhD credential has been understood as a means of access rather than as a positional power in the domestic context because of the expansion of HE. This section highlighted the importance of the relative term in the positional competition, but this should be understood relationally and contextually. First of all, human and cultural capital have often been applied when referring to the relationship between education and labour market advantages and individuals' relative positions within the labour market (Tomlinson, 2018). Given the stronger link between educational and occupational contexts for PhD students, the centrality of how positional competition is set up is the increasing 'merit selection' (Jackson, 2007) and 'to be distinction' (Tomlinson, 2017). Consistent with Jackson's idea of 'merit selection' (2007), the merits of academic publication, research abilities and competencies related to 'pursuit tactics' were explicitly recognised by these students. This is because the strengthening relationship between education and occupation destinations has led to these academic performances and achievements becoming the prerequisite for the desired professional employment. This is because the expansion of HE has brought positional competition as placing more emphasis on one's relative performance, leading to players resorting to adopting player tactics in order to get ahead.

As stated by Brown and Hesketh (2004), players recognise that there are other well-qualified competitors looking for the same jobs, so the aim is to adopt tactics to give them a competitive edge. A clear picture emerging from the qualitative analysis is that Chinese doctoral students actively adopted certain 'player tactics' to make their own graduate profile fit with the demands of academic roles. These strategies also reflect ways of increasing their relative chances in competing for academic jobs, such as publishing a paper as the first author or independent author, or having conducted government-funded research experience. Unlike the rule of completing a PhD by publication in Australian universities (Jackson, 2013), the publication requirement in the targeted university comprises the combination of three published papers and a traditional doctoral thesis. Most of the students adopted more player tactics, seeing that publishing three papers in core journals in their field was not solely a requirement to gain merit, but that it also maximised their chances in creating a positional advantage over other PhDs.

This study also found the importance of playing the university reputation game, as the race within the graduate labour market was more than a meritocratic competition (Brown and Hesketh, 2004). This is reputation capital, where these students' distinction was gained through association with the brand of their institutions' credentials. These students' responses clearly indicated that the qualifications awarded by elite institutions (i.e. 'Project 985' or 'Project 211' institutions, or 'double

first class universities') might continue to offer a positional advantage for the accumulation of occupational-specific human capital and certain job opportunities. Given the lack of diagnostic tools related to cultural capital, further research in other contexts could apply 'individual relative merits' and 'brand of university' to develop psychometric items for students who are not yet in employment.

This study also highlighted the rule of playing the game within the PhD labour market as not being solely on the basis of the 'winner takes all' market, but also consisting of where they come from. One pertinent finding in this study was related to these students' existing socio-cultural experience. It was clearly shown that doctoral training served as an educational background, facilitating certain choices for those coming from a disadvantaged background over others, as the parameters of the link between educational and occupational context is strong. According to Tholen *et al.* (2013, p.152), 'as the supply of graduates increases and the number of top positions stays stable, individuals will seek to acquire in addition non-educational credential to signal distinction to future employers.' In a similar vein, when the supply of doctoral graduates increases and the number of professional occupations stays stable, students coming from a disadvantaged family might have more challenges than advantaged students in getting a positional advantage when competing for future jobs in the elite pool. However, it is argued that Bourdieu's concept of cultural capital is a rather blunt instrument when applied to doctoral students finding professional employment at the elite end of the labour market in this study. This is because most Chinese doctoral students using certain player tactics shared similar cultural resources, which they capitalised in the labour market to align with their target occupation.

As discussed earlier, most of them acknowledged that individuals' culturally valued knowledge and dispositions are embodied as conveying advantages about prospective potential value in the HE domain. This is because the value of their cultural capital lies in opportunities during their doctoral candidature to develop themselves in their chosen area. However, concerns about cultural capital enhancement gave rise to a problem for those considering an alternative career. However, the evidence highlighted in this study was that those students who came from advantaged family backgrounds were able to develop their culturally valued knowledge in other occupational contexts through their parents and other social relations, so they generally presented a higher level of awareness about the increasingly internationalised labour market than those from disadvantaged family backgrounds. In addition, students from advantaged family backgrounds were more likely to apply for CSC-funded overseas studying, as there is clear evidence showing that some students from disadvantaged family backgrounds considered that they might overload their family's financial burden, regardless of whether or not they got a fully funded opportunity. Although students from

both family backgrounds expressed a strong intention of developing a career in academia, the valued forms of cultural capital deriving from their background positioning were still embodied.

6.3.4 Articulating self-concept and developing strategies to accomplish goals

Consistent with the understanding of the benefits of work-integrated experience (Tomlinson, 2017), this study highlighted the role of work experience for Chinese doctoral students in playing the labour market entry game. The evidence of this study suggests that it largely boosted their employability in terms of being able to articulate their self-concept and being judged fit for certain roles and opportunities, rather than following the crowd. In addition, a salient theme emerging from this study was that by engaging in reflection, the combination of past experience and present work-integrated experience enabled them to appraise their strengths and evaluate gaps to be addressed.

Consistent with previous studies (Jackson, 2017), this study found the advantages of having work-integrated experience. This study suggested that work-integrated experience provided these students with insight into the realities of academics' daily lives and afforded them the opportunity to experiment with their level of commitment and suitability to their intended career pathway. However, there was a clear gendered pattern in the perceptions of the attractiveness of continuing a research career after doctoral studies. Family concerns might be the primary reason that led to female doctoral students perceiving less attractiveness in working in a research-oriented position. However, it was shown that work-integrated experience during their doctoral candidature, such as working as a teaching assistant or research assistant, afforded them the opportunity to experiment with their fit for certain roles. Given their concerns about family-friendliness, some female students considered that their commitment to family might be challenged by the high pressure of working conditions in the research-intensive university or research-oriented system, so they indicated their career aspiration shift from research to teaching. In the same vein, this work-integrated experience also assisted male doctoral students to develop their career objectives through experimenting with research and teaching roles. Male doctoral students were more likely to generate their career interest towards developing a research career, as it was more relevant for their career aspirations and job prospects.

Additionally, this study found that the students who had prior work experience had better capabilities than other students in articulating their self-concept and a clear career path emerging. It was shown that they were more likely to articulate their values and motivations for taking a doctorate, rather than following the crowd. As discussed earlier, the biggest barrier for most of

these students was that they had always been students. Given the strong collectivistic culture influence, to some extent, their career decision-making might be easily influenced by their parents or others. Compared with the non- work experience students, those with prior work experience before they started their PhD might have stronger intentions to be academics, which contributed to them forming an emergent academic identity, a significant dimension in their employability development. A possible explanation is that it helped them frame their perceptions of themselves as academics, and their attitudes and orientations as matching this emergent academic identity.

Rather than encouraging these students to gain more work experience before applying for a PhD, this study found the value of their engaging in reflection on past and present experience. It was shown that the students with prior work experience learned and reflected on themselves and this experience, helping them to identify their personality, strengths and experiences, as well as to judge their fit for certain roles and whether the opportunity matched their intended lifestyle and career goals. In particular, this study found that most of the students had always been students or had not started their job search, which contributed to their perception that the most important influences on their own employability development remained rooted in their ability to better process and progress during their doctoral candidature. By engaging in reflection on their past and present experience, they might be able to rethink their revised and refined pre-professional identity, which might assist them better in assessing their progress towards their target role. Although this study focused on doctoral students, there was clear evidence that their employability development was relevant for past experience. Given the gap in the literature about PhD students, further research efforts need to provide more trajectory views to explore their emergent career identity.

As Tomlinson and Jackson (2019, p.12) argued, 'familiarity with a given working context is significant as it entails some degree of salience and relatedness in terms of how much people have 'invested' some element of their future self in an occupational area.' This study also found that the significance of identity formation was associated with one's agency. It was shown that these students' perceptions of the clarity and self-determination of career goals were associated with the extent to which they collected information about career options, and how much effort they invested in their professional development towards their target goals. Given the stronger link between educational and occupational contexts, it is clear that publication has become the labour market positional advantage for PhD students intending entering the HE domain. Although work-integrated experience (i.e. teaching assistant or research assistant) provided certain kinds of insight into the nature of academic work and afforded an opportunity to experiment with judging the role fit, it was shown that those who had prior work experience presented fairly high levels of satisfaction on goal accomplishment compared with other students, especially on their progress in publishing three academic papers in core journals required by the university. There is clear evidence

that these students presented greater agency in mobilising other forms of capital – social and psychological capital, to assist them in accomplishing the task of publication. In particular, they were more likely to be actively engaged in the discipline's community through asking senior students or supervisors to help them adapt to the new studying environment, and asking what was needed to succeed in publishing papers. Besides, they showed stronger resilience in facing publishing rejection, again by strategising the use of strong ties and their reflections to achieve each established goal. It might be explained by identity formation serving as a crucial bridge between education and the labour market, and promoting personal concerns in accumulating other forms of capital, which influenced the way in which students are able to develop strategies towards their target occupation (Tomlinson and Jackson, 2019).

Again, this study did not propose that all doctoral students should gain work experience in a site of knowledge production other than the university during their doctoral training. Instead, by engaging in reflection and agency, this might confer advantages on their employability development.

6.3.5 Having the capacity to withstand challenges and pressures

Consistent with the benefits of having positive psychological qualities (Tomlinson, 2017), this study found that by equipping themselves with positive psychological mindsets (i.e. self-efficacy, resilience, optimistic and adaptability), Chinese doctoral students were more likely to use certain proactivity and coping strategies to adapt to challenges and pressures during their doctoral study. This might be because their subjective interpretation of their ability was likely to be reinforced by their psychological state (Chen and Lim, 2012). However, the exploration of their psychological capital also exposed an issue relating to the lack of a career counselling service or well-being service in the local institutional context. It was clearly shown that most students overcame most of the issues by themselves, rather than searching for support from others. The biggest problem was the lack of professional services specifically for PhD students. There is clear evidence that most of them described the first term in the first year as a 'rush' and as 'terrible', since many of them might have been new to this university and geographical location, therefore taking a longer time to adapt to this new environment.

Except for having positive psychological qualities, this study also highlighted the role of students equipping themselves with certain coping strategies to withstand challenges and pressures. It was found that students who were able to deal with publishing rejection were not solely applying their resilience and optimism, but also applying problem-focused coping strategies, to find out the reasons why they had been rejected or had received a request for major correction, as well as how

to deal with pressures exerted by publication. Chen and Lim (2012) found that, in the context of job loss and re-employment, individuals equipped with problem-focused coping strategies were more likely to actively change their environment and eliminate their distress by acquiring job-search information and techniques from other more experienced jobseekers. In this study, it was found that students who were able to use problem-focused coping strategies were more likely to learn from others more experienced, to help them reduce pressure and distress.

As discussed earlier, this study found that the students with prior work experience had better capability than others of articulating their self-concept and engaging in developing culturally valued knowledge. In a similar vein, they also equipped themselves with psychological mindsets and coping strategies more than other students. In line with the previous discussion, this is because of the important role of reflection and agency in these students' identity formation, consisting of its mediation by other forms of capital so that each form of capital feeds off and enriches others, conferring benefits and advantages on students' employability (Tomlinson, 2017). The present data suggested that these students reported a high level of psychological mindset in their way of managing employability and a belief that they had the capacity to move and adapt to the fluid labour market. Jobseeking and the uncertainty of the labour market are far more complicated, which is a question for further empirical analysis.

6.4 What factors might influence Chinese doctoral students' self-perceived employability?

The final research question was to explore 'What factors might influence Chinese doctoral students' self-perceived employability?'

This study highlighted the fact that mobilising different forms of graduate capital is significant to their employability management and career-readiness within the context of mass HE. However, it was found that after controlling, identity capital in the regression model 1 and 2 could not significantly predict their self-perceived employability. As discussed earlier, this might be because most of them had always been students. Compared to the students who have never formally worked before, students with prior work experience had a better understanding of themselves and indicated a stronger intention of developing their academic career. The influence of occupational-specific human capital and networking was discussed in Section 6.3.

In addition, this section is divided into two parts, mainly discussing parental influence and gender difference. The hypotheses were framed around the more common demographic indicators such

as gender, discipline and social background variables. In contrast to previous studies, the results of this study show that the relationships between demographic variables and self-perceived employability were generally weak. In the descriptive statistics, parental background variables were found to have significance associated with these students' self-perceived employability. However, after controlling for other factors, parental background variables could not predict these students' self-perceived employability.

6.4.1 Parental influence

Many of the existing studies acknowledged parental influence on young people's career choices, but the doctoral group was still under-researched. This study addressed gaps in the research around exploring parental influence on the student sample.

The findings of this study regarding the relationships between parental demographic variables showed a strong consistency with prior studies, for example, Wong and Liu (2010), who suggested that parental socio-economic status variables affected their children's career behaviours and development. Specifically, the results of that study demonstrated that parental background influencing variables were positively correlated with their children's self-perceived employability. This study highlighted the fact that those students whose parents had better education and occupational status contributed to their children having a higher level of self-perceived employability, while those whose parents had lower education and worked in lesser-skilled occupations led their children to score lower in the self-reported employment questionnaire. There was statistical significance between the parents with a middle-school education and parents with an education at bachelor's level and above, and between parents who were government and enterprise officers and those who were farmers. Two major themes emerged from the qualitative interviews, echoing the parental background influence shown in the quantitative results. However, the qualitative data highlighted the parental background influencing their children's embodied cultural capital and social capital, which was manifest in their perceptions of occupation selection and horizons for action.

The first theme regarding the parental influence was the 'family environment and relationships'. This theme consisted of parental expectation, parental involvement and parental role-modelling for their children before and during HE. The second theme concerned the influence of parents on their children's self-perceived employability, namely the 'consequence of parental influence'. This theme covered the students' perceptions of goals and actions, especially the way they responded to the uncertainty of the future by deploying a variety of extant cultural and social capital

accumulated from their parents or family resources. In contrast to previous studies, this study reinforced not only the relationship between parental influence and the doctoral student sample, but also drew upon these students' accounts of their employability, to find out how and why parents played an important role in this research context, and focused on the differences between advantaged and disadvantaged family background students' experiences and perceptions. Arguably, the term 'advantaged' and 'disadvantaged' used here was a relative notion, which only referred to the students who participated in this study. Therefore, those students whose parents had a better educational background and occupation were called 'advantaged family background', while the students whose parents had a lower education and occupation were allocated the term 'disadvantaged'.

This study highlighted that the reason why parents still have an influence on Chinese doctoral students was attributed to the influence of collectivistic culture. Wong and Liu (2010) suggested that cultural context might explain the role of parents in their children's lives. In this study, it was found that the analysis could not account for the influence of cultural context. The findings suggested that parental expectation was a powerful contextual determinant mediating these students' attitudes and motivations towards pursuing a higher level of education and understanding the relation between HE and available career opportunities. Many of the previous studies argued that the value of collectivistic culture featured a strong respect for and obedience to parents and the traditions of the family or group (Lee, 1991; Tang *et al*., 1999). Research by Tang *et al*. (1999) reinforced the understanding of the influence of collectivistic culture through exploring the influence on Asian-American, finding that children might choose a job that was acceptable to their parents, rather than one based on their own interests. Consistent with middle-class parents' ways in the UK context, the findings showed that advantaged family background parents were more willing to invest heavily in their children's education and extracurricular activities before HE, being keen for their children to pursue higher levels of degree study to obtain what they regarded as good jobs (i.e. HEI positions). Compared to students who came from advantaged family backgrounds, students who came from less advantaged families tended to obtain upward mobility by themselves.

Consistent with the previous study (Wong and Liu, 2010), the evidence of this study shows that parents' educational level and occupational status were closely related to their ways of communicating expectations and bringing practice to their children through a series of behaviours (i.e. parent–child discussions, schoolwork guidance, monitoring of educational support strategies). Unlike the traditional hierarchy of the family context within a collectivistic culture with parental control and their children's obedience, the most notable change was seen in the responses of advantaged family students, with parent–child communication being a dominant way of making study- or career-related decisions, rather than parental control and children's obedience. The

advantaged families tended to be better able to use their social and cultural assets to assist their children in understanding the career opportunities available or the options for action during HE, seen especially in the responses of students whose parents worked in government and HE domains. Thus, it is argued that doctoral students from advantaged backgrounds often arrive at a position with a sense of where their parents will lead them, to approach their wishes and aspirations. However, doctoral students whose parents had lower education and occupation were less likely to provide any financial and emotional aid or to anticipate any critical decision-making points with their children, such as choosing an institution or subject for their degree study. However, the evidence of this study suggests that the complexity of the university application process and route to different occupations might limit the influence of the parental background.

Despite the positive outlook promoted by the expansion of HE, the findings of this study acknowledged that advantaged family parents still used their education and job advantages to promote their children's job-readiness for the labour market. Certainly, it is seen that the students who came from a disadvantaged family background might better estimate the uncertainty of the labour market, but compared with the advantaged background students, they might need to work even harder to develop certain cultural and social capital. However, the quantitative results indicate that the specific gender role influences of fathers and mothers on their children's self-perceived employability might also be taken into consideration for future study.

6.4.2 Gender difference

A key finding in this study is that female Chinese doctoral students shifted their intentions away from achieving a good career prospect in response to their personal circumstance and value. Although most of the students had not yet started their jobseeking, their perceptions of developing a future career were consistent with the gendered pattern of PhD holders' postgraduation situations and performances (Auriol, 2010; Auriol *et al*., 2013; Crabb and Ekberg, 2014; Danell and Hjerm, 2013; OECD, 2001; Schwabe, 2011). A reasonable explanation was that there was a remarkable gap between the genders' perceptions of understanding and utilising forms of capital, which mediated the ways in which they constructed their employability.

6.4.2.1 Early career event

Consistent with Danell and Hjerm (2013), this study found gender differences in the participation in early career events. It is clear from the qualitative interviews that female doctoral students'

perceived self-concept and their own sense of commitment towards developing a career in academia largely influenced their participation in these early career events, which are considered helpful to their career prospects. In light of the rational choice theory (Becker, 1985), the gender division of labour in households leads females to invest less and men to invest more in their human capital, i.e. education, training, career development and work experience. It is clear from the qualitative interviews that, given concerns about family and childcare, most female students in relationships would give up, postpone or shorten their CSC-funded overseas study visits during their doctorate candidature, while male students without these concerns showed more proactivity in grasping overseas studying opportunities.

6.4.2.2 Family concern and future career plan

This study highlighted the clear difference between male and female doctoral students' perceptions in viewing the attractiveness of a research career and their fit for positions inside or outside academia. It was shown that female and male doctoral students perceived differently the path between family concerns and developing a research career. Male students saw postdoctoral positions as enabling them to consolidate and improve their research abilities and to prepare them for a research career, while female students in the field perceived that undertaking unstable postdoctoral positions as worse, because postdoctoral jobs were conceived as family-unfriendly and lacking in job security.

The report from the President's Council of Advisors on Science and Technology in the United Stated identified that the long duration of obtaining an advanced degree and the additional unstable postdoctoral training before securing a tenured position resulted in the declining interest for younger generations in science and technology to move into research careers (Auriol *et al*., 2013). Auriol *et al*. (2013) argued that such a situation might lead to a lowering of expectations for researchers' lifetime earnings and difficulties in balancing family and research work, which might especially bring more challenges for female graduates continuing a research career in the science domain. One important condition that doctorate holders have to meet when choosing a research career is the increasing possibility of undertaking postdoctoral jobs, which are short-term and temporary positions (Auriol et. al, 2013).

Consistent with the findings of Crabb and Ekerg (2014), this study found a stereotype of gendered pattern in relation to career plans. It was shown that female doctoral students were more likely to emphasise issues around family and children when asked their views of future plans. In addition, Schwabe (2011) found that childcare was reported as the main reason for female doctorate holders'

absence from research roles. In light of the students' responses in this study, the possible reason might be that female doctorate holders are more affected by challenges caused by working conditions in the research system. In particular, there were high percentages of female researchers married to male researchers, which contributed to the 'two-body problem', that these married couples faced constraints on their job searches, especially female postdoctoral researchers (Auriol *et al*., 2013). Although not many female students interviewed in this study were married or had become mothers, concerns about 'two dilemmas' in job search and ensuring adequate care and time for family and children had influenced them perceiving less attractiveness in continuing a research career. This influenced the way in which they perceived their positions and positioning in the labour market.

In this study, it was found that there was no statistical significance between genders' self-perceived employability, but there was statistical significance reported in the formation of graduate capital. Regarding this, Hakim (2006) found that there were no gender differences in cognitive ability, but that the majority of women were seeking more work–life balance than men. It was clearly shown in this study that female doctoral students were also able to adopt certain player tactics to respond to the positional competition for future jobs, but that they might shift their career aspirations and early career events due to concerns for family. OECD (2001) reported that there could be increased numbers of females achieving top jobs in the workplace if employers could adopt family-friendly arrangements and benefits. Although equal opportunities policies had improved females' career orientations (Ministry of Human Resources and Social Security of the People's Republic of China, 2019), more support needs to be given to female doctoral students who would like to continue a research career during their doctorate candidature, in the form of how they could at different stages cope with underlying identity changes, acknowledging the way to balance future work and family needs, and smoothly moving to a research-orientated role.

6.4.2.3 Difference between survey and interview data

There was a difference between the survey and interview data. The quantitative results did not indicate the statistically significant gender differences in the scores of doctoral students' perceived identity capital, but the qualitative evidence suggested obvious differences between female and male doctoral students, especially in accounts of how they evaluated their self-concept and judged their fit for potential roles and opportunities in the labour market. Arguably, the differences might be explained by the empirical limitation of this study in using the volunteer sampling in both the survey and interview study. Although the analysis of data occurred at the same time, the interviewees were mostly recruited from participants who had completed the online survey and

indicated their intention to participate in the follow-up qualitative study. Thus, this study reasoned that the students who were willing to take part in the interview might have a greater awareness of or be more likely to talk about their views on either employability or forms of capital. In addition, although female doctoral students revealed concerns about the family–work balance, they did not stop their plans for developing an academic career. Moreover, the differences may be explained by the incompliancy of expectations and the reality of doctoral students' jobseeking behaviours. The examined constructs of identity capital focused on students' clarity about their perceived career identity and the extent to which information about their desired occupation was collected. However, previous empirical evidence (McAlpine and Amundsen, 2015) and this study's qualitative analysis suggested that the doctoral students' jobseeking activities only emerged near the end of their degree.

Chapter 7 Conclusion

7.1 Introduction

This chapter is the conclusion to the thesis. It begins with the summary of the key findings which draws together the data from Chapter 4 and 5. These findings highlight that the credential closure organises the route into the highly-skilled occupations, thereby the positional competition has become the most common feature in the graduate labour market. The findings also highlight the forms of graduate capital played a crucial role when Chinese doctoral students engaged in the early form of the negotiation with the labour market. In addition, it discusses the practical implications of using graduate capital in the institutional context. More specifically, how supervisors could benefit from adopting the graduate capital in supervising the career planning of their PhDs. The final section concludes the limitations and proposes the recommendations for future study.

7.2 Key findings and implications

7.2.1 The summary of key findings

This study explores the social construction meaning of employability that Chinese doctoral students gave to their perceptions and actions. Drew upon the quantitative and qualitative data, this study highlights that the link between educational and occupational context influences how the positional competition is set up within the social and labour market context. It has seen that credential closure has organised the route into the highly-skilled occupational fields where Chinese doctoral students would like to enter. This might be because the PhD is becoming the norm for many of the available research role either in or outside of academia. In addition, with the widened access to doctoral study and the increased number of doctoral graduates crowding in the labour market, employers have raised the expectations of having the exceptional performance and skills from doctoral graduates. Thereby, Chinese doctoral students position themselves in the competition for limited highly-skilled jobs. Firstly, the employability was understood by Chinese doctoral students as the occupationally-specific human capital, which can be signalled to prospective employers. Secondly, they saw the way of approaching their wishes and aspirations as a positioning game, whereby they have to adopt more player tactics to meet the demands of the labour market, and as well as to obtain the relative advantages over other competitors.

The finding of this study reveals that the intensified competition in the graduate labour market might have the impact on Chinese doctoral students' employability strategies. Specifically, these strategies are doctoral students' player tactics, which are on the basis of the university brand, ranking, the relative performance and right signals, rather than merely focus on academically-qualified and individual merit. Whilst the perceptions and actions might diverse, there are several significant themes and results suggesting the way that how Chinese doctoral students obtained the positional competitiveness over other PhDs, as summarised following:

- University brand: their institutional profile was perceived to influence the relative positioning in the graduate labour market, because it might determine access to opportunities and educational resources. This study highlights the value of a degree awarded by a prestigious university, such as a 'Project 985' or 'Project 211' institution. It was found that the origin of the Bachelor, Master and PhD might influence Chinese doctoral graduates to obtain a job opportunity from research-intensive universities.
- Relative performance: they needed to achieve a relative academic performance over other PhDs, which is closely related to their selection of career pathway and the demands of the chosen or target occupation.
- Right signals: they had to know what knowledge, skills and performance employers want in highly skilled occupational fields. This study highlights that completing the publications has been Chinese doctoral students' priority.
- Always improve: they had to have agency in responding to the demands of their own employability development.

By identifying the formation and application of Chinese doctoral students' forms of graduate capital, this study highlights the following resources have been purchased and utilised by Chinese doctoral student in the construction of their employability:

- Human capital. Chinese doctoral students developed certain occupational-specific human capital that aligned with the highly skilled employment they wanted. It was found that they developed certain soft skills which aligned with their chosen occupation; however, only a few of them were able to use it as an employment signifier.
- Social capital: they capitalised on their social relations and networks to enhance their early stages of labour market knowledge. It was found that they were more likely to use strong ties rather than weak ties. It was also found that different disciplines' study climates and supervisors' career guidance might influence their networking behaviours.

- Cultural capital: they developed certain embodied capital which aligned with that of academics. They were also clearly aware of standing apart from others by adopting more player tactics. This is because they largely developed this cultural-valued knowledge during their PhD study. However, the value of this cultural capital might be blunted because most of them shared similar cultural resources on how to get a job in academia.
- Identity capital: those students with an emerging academic identity were more likely to engage actively in early stages of career exploration and investment to align themselves with their chosen occupation. Gender differences were also found in the formation of identity capital, because family concerns might influence female doctoral students' career aspirations and commitment towards developing careers.
- Psychological capital: they equipped themselves with certain coping strategies to adapt to challenges and setbacks during PhD study. However, they were not yet in their job search, so whether they had the capacity to adapt to a fluid job market and withstand challenges was still unclear, although they felt that they had gained enough resilience through past experience.

Consistent with the previous studies (Tomlinson, 2017; Hirschi *et al.* 2017), this study indicates the significance of conceptualising the forms of capital as key resources to facilitate students' employability management and career-readiness. The results of survey data suggest that the usage of key resources constructs related to forms of graduate capital could improve Chinese doctoral students' self-perceived employability. In the qualitative interview, it has seen that most of interviewees might not be able to speak actual name of each form of graduate capital, but they were clearly aware of the value of the key resources because 'these resources encompass a range of educational, social, cultural, and psycho-social dimensions and are acquired through graduates' formal and informal experiences' (Tomlinson, 2017a, p.338). More specifically, Chinese doctoral students were able to mobilise the forms of capital to obtain the relative positioning, and to approach the desires and aspirations. In addition, it has seen that these key resources which purchased and mobilised by Chinese doctoral students were acquired through individual's lived experiences. Given the flexible and operationalise nature of graduate capital, it is worth considering the use of this conceptualisation of employability in a wider range of context.

Moreover, the findings of this study highlights that mobilising the forms of graduate capital in the early form of labour market negotiation could bring advantages onto Chinese doctoral students' employability management and career-readiness. The quantitative analysis indicates there were strong and positive correlations between forms of graduate capital and self-perceived

employability, which means Chinese doctoral students with the high level of forms of graduate capital is more likely to have the high level of self-perceived employability. It is suggested that the key resources related to forms of graduate capital enabled to explain 55.7% of the variance of self-perceived employability. The qualitative findings suggest that mobilising different forms of graduate capital is significant to open up the opportunity structure within the context of mass HE. It has seen that this study represented an important step to theorise the link between graduate capital and the perceptions of Chinese doctoral students, as summarised following:

- Human capital: developing occupational-specific human capital to become professionals, and being confident to access their chosen or target occupations.
- Social capital: developing social relations and networks to enhance labour market knowledge and to help open up opportunities to obtain access to the target labour market.
- Cultural capital: appreciating the culture of the target occupational context and being able to present themselves in a credible way to align with their target occupation and to stand apart from others.
- Identity capital: emerging career identity and developing strategies to accomplish their goals towards their target occupation.
- Psychological capital: equipping themselves with coping strategies and a positive mindset to adapt to challenges and pressures.

In contrast to the previous studies, the findings of this study suggests that the relationships between demographic variables and Chinese doctoral students' self-perceived employability are weak on the whole. However, it highlights the statistically significant relationships between parental influence (i.e. educational level and occupation) and Chinese doctoral students' self-perceived employability. Firstly, this study identified the influence of the parents' expectations and involvement in their children's learning and career choices process is likely to be reinforced by the high value of collectivistic which manifested in the Chinese culture (Wong and Liu, 2010). It was found that parents with higher educational level and better occupations were more likely to play a crucial role in their children's life, including chose a major for the undergraduate programme and decided an occupational choice. In particular, some Chinese doctoral students reported that they have obtained the early form of occupational socialisation from their parents because the chosen occupation happened to be the same as either of the parents. Therefore, parents with higher educational level and better occupations seems to provide more parental support to their children. On the contrary, the parents with the lower educational level and low-skilled occupations were less likely to anticipate in these critical time points with their children. The expansion of HE is designed

to increase the number of well-educated workforce in the graduate labour market. Although the strong link between PhDs and highly-skilled occupational field might weaken the relationship between family origins and academic performance over time, it might strengthen students who come from the advantaged family background to use family social and cultural assets in an attempt to get ahead.

What is more, this study highlights that there was a gendered difference in the formation of graduate capital. There was no statistically significance between female and male Chinese doctoral students in the self-perceived employability. However, the majority of female seek for more family-work balance than males did in this study. It was clearly shown that female doctoral students were able to adopt certain player tactics (i.e. university brand, right signals, relative performance) to response to the fiercer job competition, but work-life balance might change their career aspirations and commitments. The most direct influence was female Chinese doctoral students in this study were seeking for teaching-oriented and tenured jobs, which might influence their participation of early career events. Compared to female doctoral students, male students seem be more proactive to grasp the opportunities which could help them to obtain a better job prospects and professional development.

7.2.2 The implications of the study

Many countries have provided the supportive changes in the HE contents and practices within the institutional context to help their doctoral students improve employability. A good example is provided by Germany, it offers the different accounts of the value of PhD graduates (Cyranoski *et al*., 2011). Therefore, doctoral graduates who consider to take an alternative career are able to find high-level positions outside of academia. In Europe, the 'Bologna Seminar' on Doctoral Programs for the European Knowledge Society refined the higher education agendas for doctoral education, in which highlighted the importance of preparing doctoral graduates for both academic and non-academic employment, which has achieved the mass through interdisciplinary, institutional, intersectional, regional and international collaboration (Cuthbert and Molla, 2015). The Roberts Report (2002) in UK called the attention to pay on integrating transferable skills training in the fields of science, engineering and technology. According to Cuthbert and Molla (2015), six faculties out of the nine of the universities in Australia have commenced a programme which called the Monash PhD in 2013. The purpose of launching this PhD programme is to improve doctoral graduates' employability in the industry, academia, government and non-profit sectors. Accordingly, University of Queensland in Australia has designed a career development framework known as UQ

career advantage PhD programme (Cuthbert and Molla, 2015). This PhD programme is likely to interweave doctoral students' research capabilities and career possibilities into a coherent whole. However, the doctoral students' employability is rarely registered as the paramount problem in Chinese context. The evidence highlights that most Chinese doctoral students in this study found they lacked support in the first year of doctoral programme. Therefore, it is worth considering what employability strategies and practices that could be taken within the institutional context. It was clearly shown that the biggest barriers for most of Chinese doctoral student might be they had always been a student. Although they reported fairly high level of embodied capital and cultural-valued knowledge, this formation of cultural capital might be blunt when most of them share the same cultural knowledge. In addition, the doctoral students who consider an alternative career might be difficult to marshal their orientations and actions if lack certain support from professionals.

In this study, the empirical-based evidence highlights that Chinese doctoral students' mobilising the forms of graduate capital plays a crucial role in managing their employability. The forms of graduate capital might differ in their content and scope in ways, but they aggregate together would largely facilitate Chinese doctoral students to improve the career-readiness and positional competitiveness which align with their chosen occupations, as shown in the following aspects:

- Human capital – developing occupational-specific human capital to become professionals, and confident to access to their chosen or target occupations.
- Social capital – developing social relations and networks to enhance labour market knowledge and help to open up opportunities to obtain the access to target labour market.
- Cultural capital – appreciating the culture of target occupational context and being able to present in a credible way which align with their target occupation, and to stand apart from others.
- Identity capital – emerging career identity and developing strategies to accomplish goals towards target occupation.
- Psychological capital – equipping coping strategies and positive mind-sets to adapt to the challenges and pressures.

As the above evidence shown, the flexible of using graduate capital in a wider range of context is because this conceptual model focuses on the key resources which can be acquired through graduates' lived experience. Thus, it is believed that Tomlinson's graduate capital is applicable for the wider range of the stakeholders who are in the hope of their doctoral students in making a successful transition towards the labour market. The first possible implication could be used for supervisors, graduate school and career practitioners within the institutional context. Precisely, to

infuse their doctoral students with a core behaviours and attitudes related to each form of graduate capital, and then given them with enough time and space to do so. Alternatively, it might make doctoral students' employability management become more proactivity by asking their students to do some practices.

The implications of the forms of graduate capital are many and far-reaching. Further research would significantly benefit from exploring what are the forms of capital, and how they are understood by doctoral students, supervisors, the key people within the institutional context, as they are the central organisers for understanding and developing the forms of graduate capital in the institutional context. In order to facilitate supervisors and career practitioners engaging effectively in promoting their doctoral students to develop and enhance the development of the forms of graduate capital, it is recommended to take longitudinal study to explore the forms of capital on PhD students over time, and investigated the gap within their own institutional context.

7.3 Limitations and recommendations

7.3.1 Sampling method, self-report measurement and the quality of the data.

The potential weakness identified in this study was the sampling method and the use of self-report measurements, which might have the impact on the quality of the data.

The hypotheses of what factors might influence Chinese doctoral student' self-perceived employability were framed around the common demographic variables, such as gender, discipline and social background. It was found that the relationship between demographic variables and self-perceived employability were weak on the whole. This might be because this study employed a non-random sampling method to collect the data. As discussed in the methodology chapter, the rationale of employing the questionnaire within a qualitative-constructivist study was to obtain the social constructed knowledge that Chinese doctoral students gave to their perceptions and actions. The quantitative data used in this study was primarily for pragmatic reason, but it was not used for generalising the results. As shown earlier, it was found that after controlling, identity capital in the regression model 1 and 2 could not significantly predict Chinese doctoral students' self-perceived employability. Drew upon quantitative and qualitative data, it was found that it might be explained by most of Chinese doctoral students had always been a student. Compared to the students who have never formally worked before, students with prior work experience have a better understanding of themselves and indicate a stronger intention towards developing academic career. The triangulation method used in this study was to augment findings rather than validate them. By

encouraging Chinese doctoral students to speak freely about their experiences and reflections gave researcher an insight into the use of statistical measures and methods because these multiple interpretations of Chinese doctoral students' recollections and perceptions of experiences helped to understand their self-perceived employability. In addition, critics argued self-report measures might led to individual overestimate their employability. For example, it has seen that individual doctoral students with arguably the strongest 'university brand' were the relative high confident in their employability, whilst the qualitative analysis indicated that they still have the concern on the origin of bachelor degree. Although Rothwell's *et al*. (2008) study fits well with contemporary developments in China in relation to doctoral students' self-perceived employability, it is worth considering the possible influence of one's bachelor degree origin in researching Chinese context.

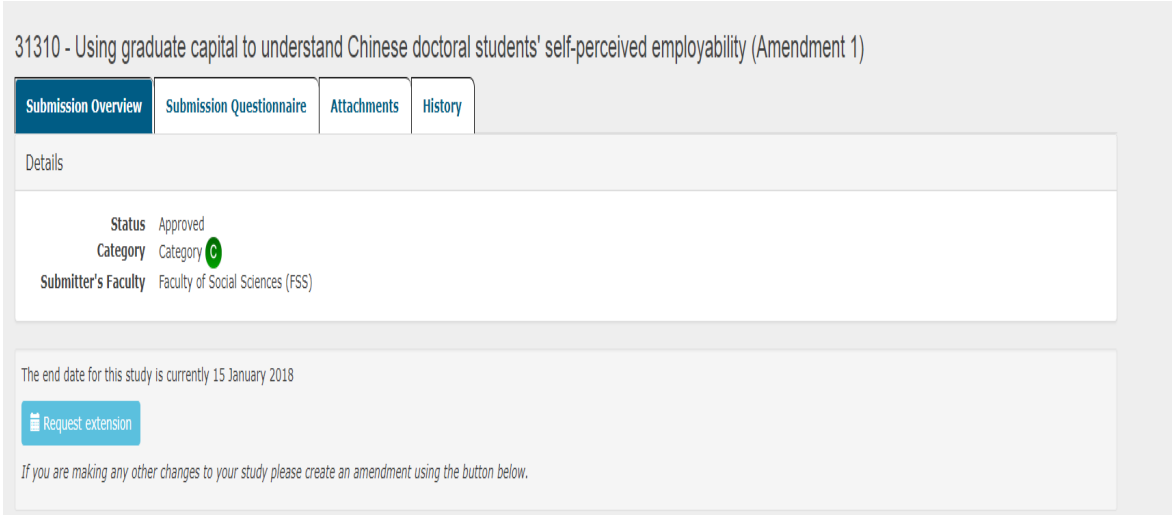
7.3.3 Extending the scope of research

Due to the time and financial related issues, this study on Chinese doctoral students' self-perceived employability only investigate their views at one moment in time. It is worth considering to investigate the perceptions of Chinese doctoral students' self-perceived employability from different stages to see whether the inventions such as the learning outcomes of graduate capital that help doctoral students' perceptions of their own employability under revision continually.

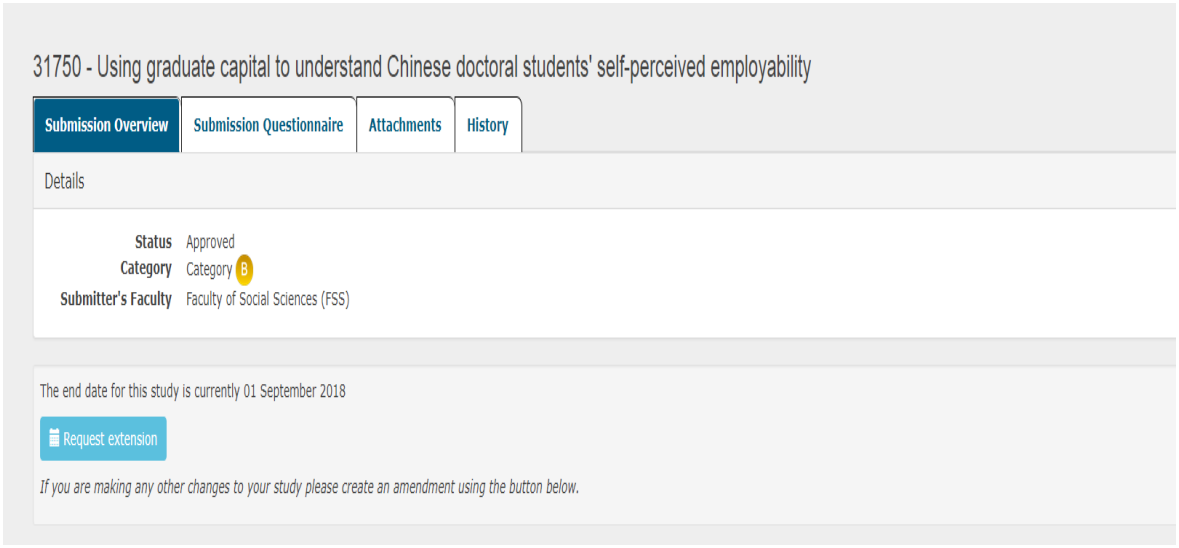
Further research would significantly benefit from exploring what are the forms of capital, and how they are understood by doctoral students, supervisors, the key people within the institutional context, as they are the central organisers for understanding and developing the forms of capital within the institutional context. At the same time, in order to facilitate supervisors and career practitioners engaging effectively in promoting their doctoral students to develop and enhance the development of the forms of capital, it is also recommended to take longitudinal study to explore the forms of capital on PhD students over time, and investigated the gap within their own institutional context. What is more, this study has revealed how forms of graduate capital is understood by individuals from different social background, gender, work experience and discipline.

Appendix A ERGO approvals

Pilot study



Main field work



Appendix B Theme alignment activity

Aim

The purpose of conducting theme alignment activity is to ensure that the scale could address all the expected dimensions of the construct being measured as it would be later use in the data collection of main field work to assess Chinese doctoral students' self-perceived employability and the formation of forms of capital.

Schedule

1. Reminder of the purpose of theme alignment activity (from participants' information sheet).

2. Confidentiality and ask participant to sign the consent form.

3. Hand out an instruction sheet outlining how to conduct the activity and definition of each of the themes under study.

4. Hand out the scale form and ask participant to evaluate if the items in the questionnaire measure what they are supposed to measure through a 5-points Likert scale.

5. Ask participant's comments on the content of items and the wording of each items.

Instructions:

1. Familiarise yourself with the definitions of the various constructs on the following page. Once you are happy that you understand the construct, please refer to the scale form, which contains the questionnaire items.

2. Read each item carefully and decide if each item measures what they are supposed to measure. 1 representing for 'does not fit at all to this factor' to 5 'excellent fit to this factor'.

Thank you for your time.

Construct	Brief Description
Self-perceived employability	One's perceived ability to attain sustainable employment appropriate to one's qualification level.
Human capital • Occupation expertise	The knowledge and skills which graduate acquire which are a foundation of their labour market outcomes.
	Possessed occupation specific knowledge and competencies.
• Job market knowledge	Possessed general knowledge about the job market and employment trends.
• Soft skills	Possessed skills and competencies that are relevant for a broad range of occupations.
Social capital • Social career support • Networking	The sum of social relationships and networks that help mobilise graduates' existing human capital and bring them closer to the labour market and its opportunity structures.
	One receives career-related support from other people.
	One's social contacts are built, maintained, and utilized to promote one's career development.
Identity capital • Career exploration • Clarity of career identity	The level of personal investment a graduate makes towards the development of their future career and employability.
	Information about career options is collected.
	The clarity and self-determination of career goals.
Psychological capital • Resilience	It is a potentially significant form of capital as it is based on the psycho-social resources which enable graduates to adapt and respond proactively to inevitable career challenges.
• Adaptability (the proactive personality)	One able to manage the inevitable stress and set-back during the job search
	One have proactively adaptable characteristics to negotiate the changes in their transition.

Questions	Theme	1. Does not fit at all to this factor	2. Somewhat does not fit to this factor	3. Neither fit nor does not fit to this factor	4. Quite fit to this factor	5. Excellent fit to this factor
E1. I achieve high grades in relation to my studies. 我在学习上取得了很高的成绩。	SE					
E2. I regard my academic work as top priority. 我认为我的学术研究是最重要的。	SE					
E3. Employers are eager to employ graduates from my university. 雇主们渴望雇用我所在大学的毕业生。	SE					
E4. The status of this university is a significant asset to me in job seeking. 这所大学的地位对我找工作起到了重要的作用。	SE					
E5. Employers specifically target this university in order to recruit individuals from my subject area(s). 雇主们针对这所大学以便招聘我学科领域的人才。	SE					
E6. My university has an outstanding reputation in my field(s) of study. 我所在的大学在我的学科领域有着突出的声誉。	SE					

E7. A lot more people apply for my degree than there are places available. 申请攻读我学位的人比名额要多的多。	SE					
E8. My chosen subject(s) rank(s) highly in terms of social status. 我所选择的学科在社会地位上有着很高的排名。	SE					
E9. People in the career I am aiming for are in high demand in the external labour market. 我所目标的职业在外部劳动力市场上有着很高的需求。	SE					
E10. My degree is seen as leading to a specific career that is generally perceived as highly desirable. 我的学位被认为是通向一个被普遍认为是非常理想的职业的渠道。	SE					
E11. There is generally a strong demand for graduates at the present time. 目前对毕业生的需求总体上很旺盛。	SE					
E12. There are plenty of job vacancies in the geographical area where I am looking. 我所寻找工作的地理位置上有很多职位空缺。	SE					
E13. I can easily find out about opportunities in my chosen field.	SE					

在我选择的领域里，我可以很容易地发现机会。						
E14. The skills and abilities that I possess are what employers are looking for. 我拥有的技能和能力正是雇主所期待的。	SE					
E15. I am generally confident of success in job Interviews and selection events. 我对求职面试和选择活动的成功充满信心。	SE					
E16. I feel I could get any job so long as my skills and experience are reasonably relevant. 只要我的技能和经验是合理的，我觉得我能找到任何工作。	SE					
HC1. Others see me as an expert in my desired occupation. 其他人认为我是我目标的职业的专家。	OCC					
HC2. I possess profound knowledge for my desired occupation. 我对所渴望的职业有渊博的知识。	OCC					
HC3. I have a very high level of expertise and skill for my desired occupation. 我有很高的专业知识和技能，适合我想要的职业。	OCC					

HC4. I have a good knowledge of the job market. 我对就业市场有很好的了解。	JOB					
HC5. I have a lot of knowledge about the current labour market. 我对当前的劳动力市场有很多了解。 HC6. I have a good overview of employment trends in the labour market. 我对当前劳动力市场的就业趋势有很好的了解。	JOB					
HC7. I have many skills that I could use in a range of different occupations. 我有很多技能可以在不同的职业中使用。	SOFT					
HC8. I possess many competencies that are also helpful in various other occupations. 我拥有许多的能力，也在其他各种职业有帮助。	SOFT					
HC9. Besides pure expert knowledge, I possess many skills and competencies that are important in different jobs. 除了纯粹的专家知识外，我还拥有许多在不同工作中很重要的技能和能力。	SOFT					
SC1. I know many people who support me in my career development.	SUPPORT					

我认识很多支持我事业发展的人。						
SC2. My friends support me in my career development. 我的朋友支持我的事业发展。	SUPPORT					
SC3. I receive a high level of career support from my social environment. 在社会环境中，我得到了很高的职业支持。	SUPPORT					
SC4. My fellow students/supervisors support me in my career development. 我的同学/导师支持我的职业发展。	SUPPORT					
SC5. I always try to be well connected in my aspired professional field. 我总是努力与我目标的专业领域保持良好的关系。	NETWORKING					
SC6. I frequently build contacts with other people who are important for my career development. 我经常和那些对我的事业发展很重要的人建立联系。	NETWORKING					
SC7. I frequently utilise contacts with other people to advance in my career. 我经常利用人际交往来提升我的事业。	NETWORKING					

IC1. I investigated career possibilities. 我调查了职业可能性。	EXPLORATION					
IC2. I went to various career orientation programs. 我参加了各种职业指导课程。	EXPLORATION					
IC3. I obtained information on specific jobs or companies. 我获得了有关具体工作或公司的信息。	EXPLORATION					
IC4. I initiated conversations with knowledge individuals in my career area. 我开始与我职业领域的知识个人对话。	EXPLORATION					
IC5. I obtained information on the labour market and general job opportunities in my career area. 我在我的职业领域获得了关于劳动力市场和一般工作机会的信息。	EXPLORATION					
IC6. I sought information on specific areas of career interest. 我寻求有关职业兴趣的特定领域的信息。	EXPLORATION					
IC7. I reflected on how my past integrates with my future career.	EXPLORATION					

我思考我的过去如何与我未来的职业结合起来。						
IC8. I focused my thoughts on me as a person. 我把我的思想集中在一个人身上。	EXPLORATION					
IC9. I contemplated my past. 我凝视着我的过去。	EXPLORATION					
IC10. I have been retrospective in thinking about my career. 我一直在回顾我的职业生涯。	EXPLORATION					
IC11. I understood a new relevance of past behaviour for my future career. 我理解过去行为对我未来职业的新关联。	EXPLORATION					
IC12. I have developed a clear career and professional identity. 我已经发展了一个清晰的职业和职业身份。 IC13. I am still searching my career and my professional identity. 我还在搜索我的职业和职业身份。	CLARITY					
IC14. I know who I am, professionally and in my career.	CLARITY					

我知道我是谁，专业地在我的职业生涯。						
IC15. I do not yet know what my career and professional identity is. 我还不知道我是谁， 专业地在我的职业生涯。	CLARITY					
PC1. When I have a setback in my job search, I have trouble recovering from it. 当我在找工作中遇到挫折时，我很难从中恢复过来。	RESILIENCE					
PC2. In my job search, I usually manage difficulties one way or another. 在我找工作的时候，我通常以各种方式处理困难。	RESILIENCE					
PC3. I can be 'on my own', in my job search, if I have to. 如果我必须的话，我可以独自一人，在找工作的时候。	RESILIENCE					
PC4. I usually take stressful things in my job search in stride. 我通常会在工作中从容地承受压力。	RESILIENCE					
PC5. I can get through difficult times in my job search because I have experienced difficulties before. 我能在求职中度过困难时期，因为我以前遇到过困难。	RESILIENCE					

PC6. I feel I can handle many things at a time in my job search. 我觉得我可以一次处理很多事情。						
PC7. I am constantly on the lookout for new ways to improve my life. 我一直在寻找新的方法来改善我的生活。	ADAPTABILITY					
PC8. I feel driven to make a difference in my community, and maybe the world. 我觉得我的社区和世界可能会有所不同。	ADAPTABILITY					
PC9. I tend to let others take the initiative to start new projects. 我倾向于让别人主动开始新的项目。	ADAPTABILITY					
PC10. Wherever I have been, I have been a powerful force for constructive change. 无论我身在何处，我都是建设性变革的强大力量。	ADAPTABILITY					
PC11. I enjoy facing and overcoming obstacles to my ideas. 我喜欢面对和克服我思想的障碍。	ADAPTABILITY					
PC12. Nothing is more exciting than seeing my ideas turn into reality. 没有什么比看到我的想法变成现实更令人兴奋的了。	ADAPTABILITY					

PC13. If I see something I don't like, I fix it. 如果我看到了我不喜欢的东西，我就修理它。	ADAPTABILITY					
PC14. No matter what the odds, if I believe in something I will make it happen. 不管有多大的可能性，如果我相信某件事，我会让它发生。	ADAPTABILITY					
PC15. I love being a champion for my ideas, even against others' opposition. 我喜欢成为我思想的拥护者，甚至反对别人的反对。	ADAPTABILITY					
PC16. I excel at identifying opportunities. 我擅长识别机会。	ADAPTABILITY					
PC17. I am always looking for better ways to do things. 我总是在寻找更好的做事方法。	ADAPTABILITY					
PC18. If I believe in an idea, no obstacle will prevent me from making it happen. 如果我相信一个想法，没有任何障碍能阻止我实现它。	ADAPTABILITY					
PC19. I love to challenge the status quo. 我喜欢挑战现状。	ADAPTABILITY					

PC20. When I have a problem, I tackle it head-on. 当我遇到问题时，我会迎头解决。	ADAPTABILITY					
PC21. I am great at turning problems into opportunities. 我很擅长把问题变成机会。	ADAPTABILITY					
PC22. I can spot a good opportunity long before others can. 我能比别人早发现好机会。	ADAPTABILITY					
PC23. If I see someone in trouble, I help out in any way I can. 如果我看到有人遇到麻烦，我会以任何方式帮助他。	ADAPTABILITY					

Appendix C Online survey (pilot study)

1. Survey

I Basic Information

1. Gender: (1) Male (2) Female

2. Age:

3. Material status: (1) Married (2) Single

4. Discipline:

5. Do you have the work experience? (1) Yes (2) No

6. What highest educational level your parents have?

(1) Lower primary school (2) Primary school (3) Middle school (4) High school (include vocational qualification) (5) College (6) Bachler degree (7) Master degree (8) PhD

II Self-perceived employability scale

1. Self-perceived employability

1a. I achieve high grades in relation to my studies.

1b. I regard my academic work as top priority.

2a. Employers are eager to employ graduates from my university.

2b. The status of this university is a significant asset to me in job seeking.

3a. Employers specifically target this university in order to recruit individuals from my subject area(s).

3b. My university has an outstanding reputation in my field(s) of study.

4a. A lot more people apply for my degree than there are places available.

4b. My chosen subject(s) rank(s) highly in terms of social status.

5a. People in the career I am aiming for are in high demand in the external labour market.

5b. My degree is seen as leading to a specific career that is generally perceived as highly desirable.

6a. There is generally a strong demand for graduates at the present time.

6b. There are plenty of job vacancies in the geographical area where I am looking.

7a. I can easily find out about opportunities in my chosen field.

7b. The skills and abilities that I possess are what employers are looking for.

8a. I am generally confident of success in job Interviews and selection events.

8b. I feel I could get any job so long as my skills and experience are reasonably relevant.

III Graduate capital scale

1. Human capital

Occupational expertise

1. Others see me as an expert in my desired occupation.

2. I possess profound knowledge for my desired occupation.

3. I have a very high level of expertise and skill for my desired occupation.

Job market

4. I have a good knowledge of the job market.

5. I have a lot of knowledge about the current labour market.

6. I have a good overview of employment trends in the labour market.

Soft skills

7. I have many skills that I could use in a range of different occupations.

8. I possess many competencies that are also helpful in various other occupations.

9. Besides pure expert knowledge, I possess many skills and competencies that are important in different jobs.

2. Social capital

Social career support

1. I know many people who support me in my career development.

2. My friends support me in my career development.

3. I receive a high level of career support from my social environment.

4. My fellow students/supervisors support me in my career development.

Networking

5. I always try to be well connected in my aspired professional field.

6. I frequently build contacts with other people who are important for my career development.

7. I frequently utilise contacts with other people to advance in my career.

3. Identity capital

Career exploration

1. I investigated career possibilities.

2. I went to various career orientation programs.

3. I obtained information on specific jobs or companies.

4. I initiated conversations with knowledge individuals in my career area.

5. I obtained information on the labour market and general job opportunities in my career area.

6. I sought information on specific areas of career interest.

7. I reflected on how my past integrates with my future career.

8. I focused my thoughts on me as a person.

9. I contemplated my past.

10. I have been retrospective in thinking about my career.

11. I understood a new relevance of past behaviour for my future career.

Clarity of career identity

12. I have developed a clear career and professional identity.

13. I am still searching my career and my professional identity.

14. I know who I am, professionally and in my career.

15. I do not yet know what my career and professional identity is.

4. Psychological capital

Job seeking resilience

1. When I have a setback in my job search, I have trouble recovering from it.

2. In my job search, I usually manage difficulties one way or another.

3. I can be ‘on my own’, in my job search, if I have to.

4. I usually take stressful things in my job search in stride.

5. I can get through difficult times in my job search because I have experienced difficulties before.

6. I feel I can handle many things at a time in my job search.

The proactive personality

7. I am constantly on the lookout for new ways to improve my life.

8. I feel driven to make a difference in my community, and maybe the world.

9. I tend to let others take the initiative to start new projects.

10. Wherever I have been, I have been a powerful force for constructive change.

11. I enjoy facing and overcoming obstacles to my ideas.

12. Nothing is more exciting than seeing my ideas turn into reality.

13. If I see something I don’t like, I fix it.

14. No matter what the odds, if I believe in something I will make it happen.

15. I love being a champion for my ideas, even against others’ opposition.

16. I excel at identifying opportunities.

17. I am always looking for better ways to do things.

18. If I believe in an idea, no obstacle will prevent me from making it happen.

19. I love to challenge the status quo.

20. When I have a problem, I tackle it head-on.

21. I am great at turning problems into opportunities.

22. I can spot a good opportunity long before others can.

23. If I see someone in trouble, I help out in any way I can.

Appendix D Semi-structured interview (main field study)

Introduction:

1. Remind the purpose of the interview (from participant information sheet)

2. Confidentiality and hand out the consent for interviews

3. Start and audio record the interview

4. Thank for participation

Guiding questions

About you	Discipline; subject; year of study; mode of study; education experience; work experience Probe- could you please tell me something about your experience since Gaokao until now?
Explore who you are (values; interests; strengths; motivations)	Why do you decide to study PhD? How do you feel about your employment prospects?
Investigate what is out there (How participants understand their future progression?)	How do you think about the current labour market of doctoral students? Do you intend to work in your discipline area after graduating? Is there any opportunities for PhD holders?
How you get there (How participants understand each important facet of capital resources and engage into their employability development towards the next milestone/ career step?)	**Human capital**: How much do you think your subject-based knowledge will help you in your future careers? Probe – so how important is your subject knowledge, e.g, your social science for future jobs? Probe – how important is your X for your future jobs?

	Except the knowledge and skills you learned from discipline study, what strengths, knowledge and skills do you have and can use in your desired profession?
	Social capital: How would you view the importance of social contacts in relation to future employment? Probe – Have there been examples when these have helped you access or find out jobs? Probe- Have people in your academic environment, e.g peers, supervisors, been helpful in opening up job opportunities?
	Cultural capital: How do you make sense of the job market and your own place within it? How well you know your desired occupation? How aware are you of your knowledge, dispositions and behaviours that align to your desired profession? Probe-How much do you feel you understand the culture/cultural context in XX? Probe- Have there been examples to show your understanding of desired occupation?
	Identity capital: How important is developing a XX career to you? How often do you think about your career and what you want from future work? Probe-Do you think these reflect wider goals and values you have?

	Psychological capital: How do you understand the maintenance of a relatively positive, proactive and resourceful mind-set to future job search? e.g Can you provide any examples when you've had to cope with challenges situations in relation to job search or future employment?

Appendix E Online survey (main field study)

利用学生资本去了解中国博士生自我感知的就业能力

这份调查问卷旨在了解中国博士生对其就业能力及学生资本的认识。首先，您需要提供简单的个人信息（不涉及身份资料）。然后，请您仔细阅读每道题目，请根据您的实际感受选择最符合的选项。该问卷预计需要 10 至 15 分钟完成。本次调查是匿名的，所收集信息仅用于科学研究并绝对保密，感谢您的耐心与支持！

I 基本情况

1. 您的性别：[单选题]

○ 男 ○ 女

2. 您的年龄段：[填空题]

_____

3. 请选择省份城市与地区: [填空题]

_____

4. 您的专业是： [填空题]

_____

5. 您正处于博士的哪个学习阶段：[单选题]

○ 第一年 ○ 第二年 ○ 第三年 ○ 第四年 ○ 第五年及以上

6. 您攻读博士学位的培养方式是[单选题] *

○ 全日制 ○ 非全日制

7. 您在读博士前有无工作经历：[单选题] *

○ 有 ○ 无

8. 您毕业后最想去哪种性质的单位工作：[单选题] *

○ 外资企业 ○ 国有大中型企业 ○ 党政机关 ○ 高等院校 ○ 科研单位

○ 出国 ○ 其他

9. 您父亲/母亲的最高学历（包括同等学力）：[单选题] *

○ 小学以下 ○ 小学文化 ○ 初中

○ 高中（含高职/中专/技校） ○ 大专 ○ 本科

○ 硕士 ○ 博士

10. 您父亲/母亲的职业是： [矩阵单选题] *

	各级政府部门、企事业单位、党政机关和公众团体的领导者	专业技术人员（教师、医生、工程技术人员、作家等专业人员）	职员（从事一般性事务工作的人员）	工人	农民	个体户	其他
父亲	○	○	○	○	○	○	○
母亲	○	○	○	○	○	○	○

II 关于就业能力的自我评估

11. 请您仔细阅读每道题目，并根据您的实际感受如实填写。 1——>5 完全不同意——>完全同意 [矩阵量表题]

	1	2	3	4	5
1.我的学习成绩很好。	○	○	○	○	○
2.我把学术研究放在生活和工作的优先位置。	○	○	○	○	○
3.本校毕业生在就业市场非常受雇主青睐。	○	○	○	○	○
4.我所在的学校的名声对我找工作起到了重要的作用。	○	○	○	○	○
5.我所在的专业的本校毕业生尤其受雇主的青睐。	○	○	○	○	○
6.在我的学科领域，本校有很好的名声。	○	○	○	○	○
7.申请攻读我学科博士学位的人远多于录取的。	○	○	○	○	○
8.我所选择学习的学科在社会上有很高的认可度。	○	○	○	○	○
9.从事我目标职业的人才在就业市场中非常紧缺。	○	○	○	○	○
10.在他人眼中，博士学位对我理想	○	○	○	○	○

中的目标职业有很大的帮助。					
11.目前，我的意向就业市场对博士毕业生的需求量很大。	○	○	○	○	○
12.在我意向的就业区域内有很多职位空缺。	○	○	○	○	○
13.在我选择的就业领域内，我可以很容易地发现职业发展的机会。	○	○	○	○	○
14.我拥有的技能和能力正是雇主所期待的。	○	○	○	○	○
15.我对求职成功充满信心。	○	○	○	○	○
16.我觉得只要我具备相关的技能和经验，我可以找到任何工作。	○	○	○	○	○

III 关于学生资本的自我评估

12. 请您仔细阅读每道题目，并根据您的实际感受如实填写。 1——>5 完全不同意——>完全同意 [矩阵量表题]

	1	2	3	4	5
1.其他人认为我可以胜任我的目标职业。	○	○	○	○	○
2.我具备目标职业所需要的专业知识。	○	○	○	○	○
3.我所具备的专业技能可以让我胜任我的目标职业。	○	○	○	○	○
4.我对就业市场有很好的了解。	○	○	○	○	○
5.我对当前的就业市场有很好的了解。	○	○	○	○	○
6.我对就业趋势有很好的了解。	○	○	○	○	○

7.我具备不同职业所需要的技能。	○	○	○	○	○
8.我所具备的才能为我寻求其他职业提供了帮助。	○	○	○	○	○

13. 请您仔细阅读每道题目，并根据您的实际感受如实填写。1——>5 完全不同意——>完全同意 [矩阵量表题]

	1	2	3	4	5
1.我认识很多对我职业发展有帮助的人。	○	○	○	○	○
2.我的职业发展得到了朋友的帮助。	○	○	○	○	○
3.我所处的社交圈为我的职业发展提供了很多帮助。	○	○	○	○	○
4.我的职业发展得到了同学/导师的帮助。	○	○	○	○	○
5.我总是努力与我目标的专业领域保持良好的关系。	○	○	○	○	○
6.我会和有助于我职业发展的人建立经常的联系。	○	○	○	○	○
7.我经常利用人际交往来提升我的事业。	○	○	○	○	○

14. 请仔细阅读每道题目，并根据您的实际感受如实填写。 1——>5 完全不同意——>完全同意 [矩阵量表题]

	1	2	3	4	5
1.我考察了许多潜在的就业机会。	○	○	○	○	○
2.我获得了有关具体工作或公司的信息。	○	○	○	○	○
3.我会主动向我职业领域内有经验的前辈请教。	○	○	○	○	○
4.在我的专业领域，我获得了有关就业市场和工作机会的信息。	○	○	○	○	○

5.我会查找有关特定的有兴趣的领域的信息。	○	○	○	○	○
6.我会思考如何将我的过去与我的未来联系起来。	○	○	○	○	○
7.我已经有了一个清晰的职业定位。	○	○	○	○	○
8.我清楚地了解自己的优势和劣势，并且可以对自己未来的职业发展进行专业的判断。	○	○	○	○	○

15. 请您仔细阅读每道题目，并根据您的实际感受如实填写。 1——>5 完全不同意——>完全同意 [矩阵量表题]

	1	2	3	4	5
1.我可以不借助他人的帮助，独立找到工作。	○	○	○	○	○
2.我能较轻松地面对找工作的压力。	○	○	○	○	○
3.我能在求职中度过困难时期，因为我以前遇到过困难。	○	○	○	○	○
4.无论我身在何处，我都是建设性变革的强大力量。	○	○	○	○	○
5.我乐于看到自己的想法付诸实践。	○	○	○	○	○
6.我善于发现机会。	○	○	○	○	○
7.我喜欢挑战现状。	○	○	○	○	○
8.当我遇到问题时，我会主动想办法去解决，而非回避。	○	○	○	○	○

感谢您的参与，如果您愿意参与后续的访谈，请您留下您的联系方式。

16. 您常用的 Email 地址或者微信是： [填空题]

_____

Appendix F Interview transcript

Interview example

Researcher

Thank you for participating my interview. Could you please talk something about your personal experience after your university entrance examination until now please?

Participant

Well … I was quite interested in learning Chinese when I was in the high school. Therefore, I would like to choose Chinese as my major for the undergraduate programme. However, this decision was rejected by my mom. She preferred me to choose finance. After our discussion, my mom finally respected my wishes, allowing me to choose Chinese as my first voluntary choice of institutions. Then I made a decision to choose the major of TCSL (Teaching Chinese as a Foreign Language) from Jinan University after searching the information. Unfortunately, I did not get on my desired major and university. This is because my score was less than the minimum pass score of the TCSL major in Jinan University. Eventually, I was subjected to my second voluntary choice of institutions, which called Nanjing Finance and Economics University. There is a widespread sense that economics has been the popular profession in the university entrance examination. Because I did not choose Nanjing Finance and Economics University as my first choice, I could only be transferred to the less popular majors there – advertising.

I have spent all my time to study advertising since then, which also consisted of my master as well as my current doctorate. I made a decision to pursue postgraduate study since the first day to go to the university. To be honest, I felt frustrated during that time point. I did reach the minimum pass score of '985 project institutions', but I failed to approach my desires and aspirations. On the one hand, we were not familiar with the strategy and process of the voluntary choice of institutions. On the other hand, I think it was my blind confidence which believed I would absolutely get on my first voluntary choice of institutions led to studying in a less famous university and unpopular major. I studied the advertising in a finance and economics speciality university. The major I studied which is not in line with my university strengths. I thought I would not be competitive to compare with other students in the labour market, thereby I wanted to make a difference and get ahead.

The reason why I am continuing to study advertising was I found I do not refuse to learning this major anymore. The most pragmatic part is because it would be easier for me to find a job in the future if I choose the same major as what I learnt at the undergraduate programme. In addition, it might be challenging for me to take the trans-disciplinary exam because I did not even have the

ground knowledge about that major. For example, if I had chosen TCSL , the possibility of being admitted to a postgraduate programme was very small. In particular, I did not study any Chinese speciality in four-year of my undergraduates. In other words, I did not want the same thing to happen again. Even if I had admitted to graduate school with Chinese speciality, there was not a strong demand for postgraduates in the labour market. As a consequence, I chose the major which in line with my undergraduate programme.

What is more, my parents expected me to be a teacher in the higher education institution, so I decided to take my a doctorate. My mom, she is a teacher in the kindergarten. She felt both of the remuneration and treatment of being a teacher in the higher education sector was much better than working in other occupations. If I were a teacher in the higher education institution, I could have both winter vocation and summer vocation. In addition, this job ranks highly in terms of social status, and it is relatively free, I could manage my own time easily. Thus, I decided to take my PhD here. And to be honest, it was quite successful that I have been admitted to my current PhD programme, which is in the same university where I studied a master.

Researcher

You mentioned your parent's view on choosing your major and further study. Could you please tell me more about your perspective please?

Participant

Literally, pursuing postgraduate was my idea. As I mentioned before, I felt frustrated at that time point. I got high marks for the university entrance exam but failed to be admitted to my desired major and university because I filled in the application form inappropriately. I would like to go to a better university, so I took the postgraduate entrance examination. And I made efforts to make it come true in the every minute of my entire four-year undergraduate study. Then I went to XX University. However, the idea of taking a PhD was from my parents, not me. This is because all my surrounded classmates at the master programme found good jobs. Some of them went to Tencent Games or Netease Games, which was the career I aimed for. Hahaha...I really enjoy to play the online games. In addition, the salary of working in a game company is quite higher, which is about RMB 10,000 to 15,000. Thus, I felt if I could go to work in a game company, it would be perfect. I could have approximately RMB 200,000 to 300,000 per year, and the best thing is I could work on the occupation which is in line with my interest. Literally, I quite admired those students who were working in the game company. But you know...my parents persuaded me to take a stable job. They thought if I went to the game companies, I would be struggle to survive in the big cities because the game companies are usually located in the place where economically developed, such as Beijing,

Shanghai and Guanzhou. Even though I could earn a lot if I work hard, there exists the huge pressure for work and life balancing. In their opinion, they could support me if I still aspire to go for my interest, but they expected me to take a less stress life. As a consequence, I planned to take the doctorate entrance examination as the first choice. If unfortunately I failed, I would go to the game companies. And currently, it is my first year of my doctoral study.

Researcher

Could you please talk more about what you did for your preparation for doctorate entrance examination? And did you search the jobs at the same time?

Participant

I did not prepare the doctorate entrance examination and job search at the same time. I had to write up my thesis for my master. If I prepared all the things together, I am afraid that I could not handle all of them. Therefore, I think the best plan for me was to prepare the exam first, and write up my dissertation within the time frame. If I failed in the entrance examination, I could take part in the spring recruitment in March. Although it would be a little bit late to find a job, I think it would be better to do things one by one. Literally, I know myself and as well as my capability.

Researcher

And why you decide to choose XX University for your postgraduate study?

Participant

Firstly, the advertisement in XX University ranks top in China. The second reason is because my boyfriend he was born in XX, and currently he is working in XX. I don't want to have a long-distance relationship. I think it would be better if I could take a master near where he works, then we could visit each other easily. My alternative plan was back to my hometown – Yunnan. My plan was to apply a '985 projects' institution, which would be able to provide me with more chances. For instance, if I failed to be admitted by XX University's doctoral programme, I could still have a chance to transfer to other university in my hometown. If I had chosen one of the '211 projects' institutions, I would not have any opportunity to choose. Thus, I chosen XX University as my goal.

Researcher

What was the form of your doctoral programme admission?

Participant

Actually, there was an opportunity for me to apply for the doctoral programme of advertising at Shanghai Jiao Tong University. The research interest was lying in the combination of industrial design and advertising. All students in our school received the notice from graduate school. And we have been reminded to send our application if we were interested in this opportunity. Then I sent my application to Shanghai Jiao Tong University, and received their reply for interview. Unfortunately, the degree I took was a professional master degree, which did not meet their criteria. Finally, Shanghai Jiao Tong University rejected my application, so I had to take part in the doctoral entrance examination of XX University.

Researcher

Ok, so what is your current doctoral research about?

Participant

My research is in line with my supervisor's research interest, mainly focuses on the shift of consumption.

Researcher

Could you please talk more about this please? And why you choose the shift of consumption for your PhD?

Participant

Well… I could not make any progress if I continued to undertake the previous one. I could still remember it was the second year of my master study, my supervisor successfully applied a research project which was sponsored by the Ministry of Education. And this research was about the shift of consumption consciousness and the comprehensive consumption. Then my supervisor asked me to lead a 10-people research team to help her to conduct this project, and as well as to complete a 350,000 words book manuscript. The team members were chosen from the first year students at the master programme. Then, it was the start to do the research about the shift of consumption.

My supervisor has two main research interests. One is about the effect of advertising, and the other is the shift of consumption. I did a research for my master's thesis, which was about the effect of advertising. However, there were much of the existing literature in this research area. I found it was really hard for me to take my own research in this area. Thus, I do not have any interests to do the relevant research. And I think my PhD would focus on the research about new consumerism.

Researcher

That's interesting. Could you please talk more about the experience that you found is important to you?

Participant

I think I would say the internship I did. I had an internship in a media firm in XX when I was in the first year of my postgraduate study. I did the internship there for about 3 months, mainly responsible for product publicity and promotion. I was asked to help doing the publicity and promotion for a TV show, called 'Lose weight and win my life'. In addition, I went to the operation company in the national industrial park in XX. I was responsible for some clerical work. For example, I had to deal with all the documents of such a procurement for check, approval and reimbursement. Except for those two internships, I feel the most useful experience is to help my supervisor to do some research projects. Apart from the MOE research projects she taken, my supervisor also took several horizontal research projects from enterprises. Or some periodical offices would ask her to do magazine revision and as well as some planning works. Sometimes the content of magazine was produced jointly by me and several junior master students.

Researcher

Why you feel those experience is important to you?

Participant

I gained much knowledge and information from those experience. Take the first internship for example, I could be aware of which kind of jobs that is suitable for my personality and future career. And I know the new media is not suitable for me. In fact, many of my classmates went to those new media companies after they graduated. However, the industry there was the most pitiful burlesque stuff that you could imagine. I will never go to the new media industry.

In addition, I feel the experience of internship exerted the impact on my decision making and career planning. By helping my supervisor to do the research project, I think I learned a lot. For example, it did help me to develop a certain stand, viewpoint of doing research and excellent accomplishment. The most useful part was I could learn how to apply for a research project, which consisted of how to write the research proposal and deal with the issue of budget. Meanwhile, I learned how to search the useful literature, and how to write up a well organised literature review. Furthermore, I helped my supervisor to do the research project through the beginning to the end. That experience is necessary if I would like to do work in academia field. It is beneficial for me if I would like to apply and conduct research projects in the future. It does help to my future career development. What is more, the experience of conducting research projects could also help me to

know and understand the working environment of the higher education institutions that I expected to work for.

Researcher

You mentioned you expected to work in higher education institutions. What kind of the position you are looking for?

Participant

I think I prefer the teaching related work.

Researcher

Well…you also mentioned the experience of conducting research projects help you recognise the working environment of the universities that you expect to work for. Could you please talk more about your understanding of higher education institutions recruitment criteria and working environment through the experience you obtained?

Participant

I only know two main areas, one is teaching and the other is about research. Generally, when doctoral students graduated and got a job in higher education institutions, he/she could entitle the treatment of the associate professor for 2 years. But only he/she could complete the requirement for publication each year, then it might have the chance to entitle the treatment of the title afterwards. The new teachers are under greater pressure for publications.

Because I am studying in XX University, and I know here pretty well. I found the research is greater important than teaching. In general, they do not have much teaching tasks. But they had been asked to make efforts on researching and publication. I have some classmates from my doctoral programme, who used to work in non – '985 project' or non – '211 project' universities. They said they had more than 10 teaching tasks per week, almost occupied a week's time. I feel the different type of higher education institutions, they do have their own strategy and plan. I think I will take the teaching task and academic pressure into my consideration if I would like to work in higher education section.

Researcher

Do you have the desired one right now?

Participant

Well…currently, I don't have the desired institutions, but I think I do have the geographical area that I am aiming for. I would like to go to XX Province. For myself, I hope if I could go back to my hometown – XX. But my boyfriend hold a different view. Thus, I think the first choice would be still XX Province and XX Province. But XX province is my first choice.

Researcher

Is that your consensus?

Participant

Yes, we had this kind of discussion for several times. The reason why I would like to find a job in XX Province is because I obtained some information from my classmates. They said there is a shortage of higher education teachers in XX Province. I also heard that many people who are well-educated or born in rich family tend to take over their family business after they graduated. In addition, the majority of local people are carrying on their own business, and they show greater respect to teachers.

Apart from XX Province, I also mentioned the XX Province. This is because I used to study there. But it does have some difference between XX and XX Province. For example, there are more universities and high ranking universities in XX Province than in XX Province, such as XX University, XX University, XX University and XX University and etc. However, there is only one '985 project' institution in XX Province, namely XX University. Most of the universities in XX Province are '211 project institutions' or the normal universities. Thus, there is a shortage of teachers and researchers for higher education universities in XX Province. To be honest, I would say the competition of gaining a position in higher education sector in XX Province would be much fiercer than in XX Province. Because those top ranking universities would more prefer to recruit and take in the candidates who graduated from their own universities. And the vacancies of good university position are quite limit each year. I think I will consider to find a job in a place where I can obtain more relative positioning. Thus, I think it would be easier to find a job in XX Province rather than in XX Province. Apart from these, I heard that XX (in XX Province) has a nicer talent introduction program. Therefore, XX Province would be my first choice.

Researcher

You talked a lot about your views on finding job, and how do you understand the job market for PhD students?

Participant

Well… our country started double top construction (the evaluation of world-class universities and world-class disciplines), cultivating outstanding innovative talents. The national 'double first-rate' strategic plan is an ambitious higher education policy. I had a good relationship with one of the professors in our school. Through our communication, I heard some news about the evaluation of 'double first-rate', which closely links to the PhD job market.

Take our journalism and communication science for example, having at least 80 full-time teachers with PhD is one of the criteria to be qualified for 'A' level of discipline's evaluation. The evaluation of 'double first-rate' in higher education sector is quite similar to the evaluation of engineer's job title. So, except for the Communication University of China, I think lots of universities are not qualified and could not reach the 'A' level. As far as I know, the Communication University of China has 83 professors, associate professors and other staffs. I think whether a university pays the attention to the subject, and whether they would like to do further discipline development would absolutely influence the result of 'double first-rate' evaluation. The major I am taking now at XX University ranks top in the country. However, you know, university still paid more efforts on building those traditionally hot majors, such as economics, chemistry and etc. Thus, I feel our school is unable to take any advantageous resources and neither would be able to allocat many staffs for discipline development.

I feel there would be more opportunities for PhD students in the general cities, rather than the big cities. This is because the universities and local governments in those areas would pay more attention to certain disciplines, and might support the development of discipline by recruitment more staffs. For example, XX University. If I obtained the relative merit in my field of study, I believe I could have more opportunities in the future. Another serious problem I find is there is an increasing number of PhD graduates who studied overseas are coming back to find a job. Apparently, the competition would be fiercer. But I don't have the intention to go to the '985 projects institution'. Or it could say I could not reach the recruitment requirements, because I did not study my first degree in a prestigious university. Hahaha... I would not feel much pressure, and push myself to go to the good universities.

Researcher

You discussed the general PhD job market, and would you minding talking something about the understanding to your field of study?

Participant

Well, take my university for example. The recent recruitment for full-time teachers basically requires the candidates to study their bachelor, master and doctorate in different '985 project' or

'211 project' institutions. Apart from this, it also requires the candidates to have at least one-year exchange or studying abroad experience. So, I feel the recent academic threshold of entering '985 projects institution' is really strict. I believe the prestigious universities would have a much higher recruitment criteria than the normal one. In our field of study, the Communication University of China is the top one around the country. And I believe it should have a relatively high threshold to recruit the staffs. As I mentioned before, there are lots of overseas returnees with the doctorate coming back to find a job. In our field of study, the domestic doctoral graduates would be influenced greatly by those overseas returnees who came back from the United Stated. Because the study of journalism and communication in the United Stated has been at the forefront of research and development. As such, to study in those universities and America would be the hot destination for some Chinese students. If they came back for a job, the domestic doctoral graduates would definitely be influenced. That is also the reason why I give up to go to the good universities, because I don't think I could compete against them.

In addition, I found our school did not recruit any new staffs in these years, except for a post-doctor. He had two-years working experience, and was recruited by our university for a research project. So, I feel it would be quite hard if I would like to go to the '985 projects institution'. However, I have been told that some ordinary universities in Shandong, Guanxi or Guizhou Province would provide more opportunities to doctoral graduates. This is because those ordinary universities concern the certain discipline development and they are also worried about recruiting talents to help them build a brand to attract students. In general, the majority of doctoral graduates prefer to go to the relatively good universities. For those ordinary universities, it would be difficult for them to recruit the staffs for certain subjects. And I think that would be my opportunity if I do my job search around those ordinary universities. Because those universities really need someone who could directly influence the assessment of certain discipline, they would not care which university I studied my bachelor, but they would pay more attention to my doctoral university and my publications. For example, if I could publish my doctoral thesis with their university's name, and that would be the great help to support their academic assessment. Additionally, I would have good growth potential and good wages as well.

Researcher

Thank you for telling me which type of higher education institutions that you would like to do your job search. Could you please tell me more about your understanding to higher education positions and how will you prepare yourself?

Participant

Actually, I got those information from my classmates who are from my current doctoral programme. Because some of them already had the working experience in the higher education sector before they started their doctoral study, they could provide some useful information if I am interested in finding a job in academia field. One of my classmates, he used to work in a business school in Wenzhou for several years. He told me that the majority of staffs in their school are under the greater pressure because of the academic publication. For example, they have to publish two articles in the core periodicals each year, or more than two articles in the other key periodicals. All the publications would determine the annual bonus that you would get. I think I would not prepare anything at this stage, because I had other tough thing that I need to worry about, that is how to publish three papers in core periodicals in my field of study in order to meet the graduation requirement. I think the three papers publication in the core periodicals in my field of study is a big challenge. Because there are only four top journals in total in my field of study, and also include the one that is edited by the National Press Association. However, the research field I focused on does not match the interest of that journal. So, it is really hard to have my article published on the one edited by the National Press Association. The choice left for me is to publish my papers on the rest three journals. But there is one big issue existed. That is those core periodicals are edited by the Communication University of China, mainly focus on the field of international news. And you know the subject of journalism and communication in the Communication University of China is really good, and most of articles that published on the rest three journals are written by the teachers and students from the Communication University of China. What is more, even my article has been accepted by those core periodicals, I have to wait in the queue. In general, it would need at least one year to have one article to be published. Therefore, I feel I have greater pressure because I would like to publish my three papers on the top journals. Even though I choose to publish my papers on the first-class national core journals, it would be still quite tough.

Recently, university just eases our doctoral students' graduation requirements, which means if our supervisors could help with the publication, it would reduce the degree of publication difficulty. For example, my supervisor she was graduated from the Communication University of China and she already has some reputation in our subject area. If my paper could has her name on the list, it would definitely help my paper publication. However, I feel every coin has two sides. It do help for my paper publication and graduation successfully. But when I go to find a job, I would be questioned by employers, especially my capability in doing research and publication. And I do not think I am competitive if I were the second author of all my three published paper. Currently, I have finished my first paper and I am just waiting for the reply from the editors. Hope it would be the good news. As I mentioned, my research field does not match the interest of those top journals in my field of study. So I have to change my research direction if I would like to publish my papers on those

journals. It does not mean I would change the research focus of my final thesis, but I am referring I would intend to get some inspiration from current study module, to see if there is any topic that I am interested in. Or I hope if there was any other staffs, and they could supervise me in their research area and help me with my paper publication. I feel what I need at this stage is to find some new entry points and to start writing my papers.

Researcher

Could you please tell me more about why you would like to do some exploration in other research areas?

Participant

Well, I think the main reason is because of the three papers publication. I remembered I talked about there were only four core periodicals in my field of study. One of the periodicals called news advertising and communication research. Because the subject I studied is the second-rate discipline, sometimes it is difficult for us to publish our papers in the top journals. But the studying module of our doctoral programme includes the lessons of public relations and relevant journalism knowledge. I hope if I could get some new ideas from those lessons and write some articles as the first author myself in the research field of international public relations, or the cross-international public relations, or communication studies. If the original idea is mine, then I could be the first author. I could ask the course teachers to give me some suggestions on revising my papers. If the idea is not mine, then definitely I could not ask to be the first author. For me, I think if I would like to work in higher education sector, the most important capability is whether I could publish my papers as the first author. Of course, I have to work hard, and that is what I am doing now. I am making efforts to reading and exploring if there are any topics that I am interested in and then I could work on writing my articles.

Researcher

Thank you so much for sharing your perspectives with me. You mentioned that you did some projects under your supervisors' supervision, could you please tell me more about this please?

Participant

I am the first doctoral student of my supervisor. She is 38 years old, and I think she is quite young when compared to other teaching staffs in our school. Recently, I found there is a gap of the teaching and researching staff's age in our school, especially our school didn't recruit any new staffs in recent years. So, in the age cohort of my supervisors', I think she has become the top one who is good at both teaching and doing projects. My supervisor graduated from the Communication

University of China, and she has quite a lot experience in doing business projects rather than doing the actual research. So, sometimes I would feel she is a pragmatic teacher. The almost suggestions I obtained from her was basically on how to do some commercial projects, such as deal with the research projects with corporations or helping periodical office to revise the magazines. Thus, the suggestions that she could give me on my academic work is quite limited, only some advice related to advertising industry. She could not give me the suggestions such as how to grasp the general direction of my research. In fact, we had the discussion about this, and she has noticed that research design is her shortcoming. So, she provided me quite a lot of opportunities to do some business related projects, and she also hopes I could develop and improve my research skills through doing more projects. She also expects if I could have discussions with other staffs who are good at doing research. Since the first year of my master, my supervisor has supervised me for about four years. Sometimes we will also have some discussion related to our daily life. I feel my supervisor will always push me to go ahead, but she will never tell me what I should do next. I think it tends to be a reminder.

But there is one thing which cause me frustrated. That is I have to worry about the trivial things of my supervisor. Sometimes I feel I am always in a high-pressure environment. Except for my own academic pressure, I have to deal with the problems that are not mine. For example, my supervisor is planning to apply the visiting to the United Stated recently. And I have to deal with the application and other kind of document processing. Sometimes I would wish my supervisor she could be a boss type. I only need to complete the stuffs that are around what I should do. Because we have a quite good relationship, sometimes I find it is difficult for myself to refuse to help her with some trivial things.

Researcher

What else you have to do?

Participant

Currently, I am responsible for the reimbursement issues. I am also the teaching assistant of my supervisor, so sometimes I have to help her revising the courseware which she has to use in the class. In addition, if my supervisor goes to the do enterprise training, I have to help her to find some cases that could use in designing the lessons.

Researcher

When did you start working as a teaching assistant? And could you please talk about your perspectives on the work you have done?

Participant

I start to work as a teaching assistant since the second-year of my master. I was asked to help both lectures of marketing research and marketing strategy. The autumn term is the marketing research and the spring term is the marketing strategy. In general, I have to help my supervisor check students' work and input their scores. If the students need to do the group presentation, I would need to be there and help them calculate the time and mark the score. If it is the end of semester, I also need to do invigilation work. I think the most important thing I learned from the work of teaching assistant is I could know how to prepare the resources, design the studying module and present and teach to the students. I think my supervisor, she pays attention to how to create the assignments, and students will benefit from doing those homework. Because I am looking forward to working in the higher education sector. Besides doing the research work, I have to take the teaching task. I had the discussion with my classmates who had already taught in the universities for several years. And I had been told it is quite hard for a new teacher to prepare and design the leaning task for a whole lesson. Sometimes you would feel too many knowledge points that you have to teach in the class, but you won't have enough time to do that actually. By doing the teaching assistant work, I know how to arrange the content of each studying task, how to assign the homework and what else I should include into my class. In particular, my supervisor is good at teaching, and I can always learn from the experience of her providing. However, I have repeating to do the teaching assistant for the same course each year. And this is my third year, sometimes I would feel really tire due to repeating the work as usual and I couldn't learn something new. In addition, I think the invigilation work wastes my time. Each year I will have 4 or 5 invigilation work. And I have to wait until the last day then I could do my holiday plan and book the ticket home.

Researcher

Except the work of teaching assistant, did you do other works?

Participant

Currently not, I only need to deal with the reimbursement issue at the moment.

Researcher

Ok, you mentioned a lot of times about 'competitive', so what strengthens do think you have when compare with other graduates?

Participant

Besides my doctorate, I think the subject of advertising I am studying now has certain advantages if I want to find a job. Because the journalism and communication is the first-rate discipline. So, the most of the universities if they have set up the doctoral programmes, they would definitely have the subject of the journalism and communication. However, there are only few universities have the subject of advertising in their doctoral programmes. I think if the universities which already have the subject of advertising or plan to set up this subject, they would definitely need some specialists. Apart from this, I do not think I have any strengthens if I want to compete with others right now.

Researcher

Ok, do you have any aspirations about your future work? Could you please talk more about this please?

Participant

Going to the game company is what I am looking forward to do. Because I really like to play the computer and online games, and I think if I could work in a game company would be a really fascinating thing. I have some classmates found their work in the game company. It is quite normal to work overtime, but they never complain that. Because they feel that is a 'bitter & sweet moment'. So, I think going to the game company would be one of my option. Before I started my master, I also considered to be a chef someday. But I would not take it as a full-time job, I know what I should do.

Researcher

You talked about your interests, so, will you take it into your consideration when you go to find a job?

Participant

No, my aim is to find a job in the higher education institutions. I would do something I like when I am free, and I think it is a really important point. The other reason that I would like to work in higher education, is because I hope I could separate my work from my daily life. In other words, I do not like to do the work I do not like to. For example, the new media job I did before, I would not go there even they provide me with the nice salary. Besides the work of higher education teacher and doing some business projects with advertising companies, I hope I would have some private time to do something that I enjoy to do. But they are just my hobbies, I would not take it as my rent-paying job.

Researcher

Thank you for let me know that. Could you please tell me more about your PhD experience please? Including your life and study if possible?

Participant

I am the monitor of our class. My classmates recommended me to be the monitor because I studied my master here and relatively familiar with the university. I really appreciated they believed me could do the work well, so I am willing to take the responsibility and make efforts to do the work well. To be honest, I am not a creative person, but I am the one do the real work. Generally, I have to inform everyone the information related to selecting the courses or organising the events of the party members. Because PhD students are different from the undergraduate or master students, the majority of them have family or children need to look after. So sometimes it is quite hard to contact and organise the students who are renting house outside the campus. Apart from taking the role as monitor in our class, I am also serving as a secretary position in our school. I feel the work of secretary is harder than the monitor. This is because I have to keep contact with each members in the party, and collect information from them when awarded the outstanding party members.

Researcher

Could you talk about your experience of serving as the monitor and secretary, and is there any impact on yourself?

Participant

I feel the entire experience of doing monitor and secretary has trained me on problem solving skills and the ability to manage and organise problems. It is easy to negotiate with other master students because normally there are in the campus. But most of PhD students, due to different kind of issues, such as child care, field work or exchange study, they are not based in the campus. So, what I have to do is to negotiate the time to organise the events regularly and make sure everyone get the notice from school, such as selecting course or other important announcement. In addition to this, I have to contact with different teachers as well, I feel I develop my communication skills through the contacts.

Researcher

You mentioned you have to contact the students and teachers quite frequently because of your monitor and secretary work. Besides the work reason, are you a proactive person and would like to know and contact the people?

Participant

Well, I think most of the time I am quite proactive and would like to know the new people around me. Because my supervisor could soon get the title of professor after she comes back from visiting study, she does not initiate to know the new people. Thus, she always tell us to build the contacts with other staffs if we expect to have more opportunities. In particular, my supervisor is not good at analysing the quantitative data, so I have to ask the help from those staffs who work on quantitative data analysis. I always take initiative to contact my previous course teacher who taught me quantitative data analysis, and asked him some questions that I could not deal with. Of course, I would not bother the staffs I am not familiar with. I would only contact those I knew and I had taken their classes before. I would send them the email to ask if they are happy to supervise me or give me some suggestions. Almost of the time, those teachers are happy to help me if they are not busy. Therefore, I got a lot of chance to discuss my research topic with different teachers and also received some useful suggestions from them. But I would only contact them if I meet the problem on my study.

Researcher

Except the study, will you build the contact with others?

Participant

Not too much. Because some of my classmates, they are now taking the exchange study in the other countries. And also some of my classmates, we are not supervised under the same supervisor. Thus, there is little chance for me to contact other people, because most of time I would stay in the library or my accommodation in the university. But if I meet any problems, I could always ask the help from the senior students. They are all quite friendly and willing to share their experience.

Researcher

Have you set any plans for your PhD study? Or could you please provide some time point that you think it is important to you?

Participant

I do have a concrete plan for each phase of my doctoral study. I hope the end of this semester, I could have two articles ready and wait for publishing. Because we have the three paper publication

requirement to get our degree. For me, one paper is done, and I am planning to write the other one in the following 4 months. In addition, my supervisor expect if I could get the national scholarship, so I have to work hard and make efforts to improve my credits. We do not need to have the exams, but we have to submit an essay for each course to earn 10 credits. The Marxist philosophy I took last semester, I did not get the nice result, which makes me a headache this semester. Because I have to get a higher mark on the other course in order to get the credit I lost in the Marxist philosophy. That is my first year plan. For the second year, I plan to take the TOEFL or IELTS exams. I hope if I could successfully apply the scholarship from China Scholarship Council (CSC) to fund me one-year exchange study in the United State. I expect that I can build up some new ideas through my exchange study and finally to decide my dissertation topic. As for fourth year, I would pay my attention on writing up my thesis and then go and find a job. The rule of playing the game is to know what to do at each time point, and make efforts to achieve the goals.

Researcher

Why you would like to prepare for the exchange study?

Participant

On the one hand, it is because to meet the recruitment requirement of higher education. We have been asked to have at least one-year overseas studying experience that are meet the requirement of entering into higher education institutions. But for the ordinary university I would like to go, the overseas studying experience is not the most necessary element of recruiting. I had do some research and found they allowed the candidate to have overseas studying experience after they enter. On the other hand, I think the exchange study itself is beneficial to me. The study of journalism and communication in the United Stated has been at the forefront of research and development. At the meantime, I could develop my research skills as well as my knowledge in my field of study. Both my supervisor and my family support my decision, and they always push me to go ahead and complete each setting task on time. My supervisor would go to America in August this year. And then she would help me to look for the host supervisor who could supervise me when I exchange, and she would also introduce me to some staffs she met there. So, I get definitely lean a lot through that one-year overseas study.

Researcher

Ok, so who would you go for the career development advice?

Participant

I would say my supervisor. She graduated from the Communication University of China. The Communication University of China is the editor of one of the top journal in my field of study. It would be easier to publish my paper if my supervisor is the first author and I am the second. The first paper I completed originated from one of her undergraduate student's thesis, which was marked as excellent. My supervisor asked me to extract the key point and revise the thesis. It really costs the time to revise the thesis. Let me think... I took me nearly two-years. We tried to submit our first draft for publication, but received the rejection from the periodical. Thus, we give up the original idea, and proposed the new ideas to write up this article. In the final, I changed to the second author, and that undergraduate student changed to the third author. Overall, I think my supervisor could provide me with some useful information, especially I would like to work in the higher education.

Researcher

Ok, could you please talk something related to your own research please?

Participant

I studied all of the research methods courses when I studied my master degree. I benefited from those courses. Because they explained each research methods in details. The research I intend to do for my doctorate will involve both of the questionnaire and the content analysis to some business cases. I think the lesson of data analysis is really useful. Because I do not have any knowledge of how to deal with the dataset before I started my master. But I would say if you start to analyse your own data would be totally different from the lessons you studied. In particular, I met some problems when I analysed my data for master thesis. I had to read the textbook, watch online tutorials and ask help from the course teachers. But in the final I learned a lot from this experience. I grasp the basic knowledge of different research methods and how to analyse. And since then, I am quite interested in analysing quantitative data, so I determined to take quantitative methods in conducting my doctorate research. For doctoral students, I feel the most important research skill is the independent learning. It means the entire doctoral study is a process of exploration, so you always have to learn new knowledge.

Researcher

Did you experience any difficulties or setbacks before? And how did you deal with that?

Participant

Take my master dissertation as example. My supervisor thought it was an interesting topic. The research itself is about the advertising effect, is one of the research interests of my supervisors'. It

seems quite good at the beginning, but the later I found the research I had done was meaningless. The work itself did not make any contribution to the research field nor have any practical use. My supervisor was satisfied with my work, but not me. She helped me revising the paper and asked me whether I would like to publish my paper or not. I refused her invitation, because I know each paper I published would influence me in the future if I would like to work in the higher education sector. I was really upset during that period because I hope I could be a good researcher and I hope I could prove my ability. I felt quite confused and depressed at that time. But my friends enlightened me and let me realised it was just a master dissertation. What I should do was to go ahead, and learned from my experience. So I sent my thesis to other teachers who are also conducting research in the advertising effect and ask for some suggestions. In addition to this, I read more literature, include both domestic and overseas. And I found though the research of advertising effect originate quite early, it met the bottleneck in further study. So, that is the other main reason that I would like to change the research focus for my doctorate study. In addition, I found I would feel upset when I got a poor academic result. But I am a relatively optimistic person. I will chat with my friends, and they will always give me some suggestions. Take the poor score for example, you cannot change anything because you have not prepare the exam well. So I will always remind myself to work hard, and work harder if I get the result that I am not satisfied with. In particular, I did not do well in completing the essay of Marxist Philosophy, so I have to work harder to earn the credits I lost from this course.

Researcher

Well, how do you think you will deal with the uncertainty and difficulty of getting a job after your PhD graduation?

Participant

I think I could deal with the problems. I feel the most important thing is to be positive and optimistic when you meet any problems. Take PhD entrance exam for example, I will give myself an alternative option. Even I lost in the entrance exam, I could prepare and do it next year or I could go and find a job. Nothing really matters. I think the most important secret of myself is to make adjustment, and realise why I failed this time and what should I do next. Even though my master dissertation is meaningless, but I learned a lot from that experience. Because that was the time I first conducted a research study.

Researcher

So, do you have the confidence that you could be qualified for your desired occupation?

Participant

I think so. I think I could definitely go to the ordinary universities that I desired to if I could get my doctorate successfully. I did not get a bachelor degree from the '985 projects' or '211 projects' institutions, but I studied both my master and doctorate in a '985 projects' institution. I feel quite confident of my credentials could help me towards the work I am looking for. Apart from this, I always push myself to go ahead. My aim is not just completing the three papers publication, but I do hope I could publish my articles as the first author or the independent author. The internship I have done help me to discover the work field I am looking forward to, and the other experience help me recognise what I need to improve if I would like to work in the university. Overall, I am not worried about my papers publication, because I am preparing and working on, and I believe it will all sort out.

Researcher

That's all. Thank you for participating my interview.

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