

Qualitatively Different Ways of Experiencing Learning: A
Phenomenographic Investigation of International Economics and
Trade Undergraduates' Conceptions of Learning in a Chinese-
Australian Cooperative Programme

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I, [Xiantong Zhao] confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Abstract

This study investigates International Economics and Trade (IET) undergraduates' conceptions of learning in a programme cooperatively run by a Chinese and an Australian university.

Programmes jointly run by Chinese and foreign universities are increasingly common, as a means to attain greater internationalisation of higher education in mainland China. While higher education internationalisation research in China has been dominated by a focus on policy making, strategic planning and institutional management, the student's learning experience remains relatively unexplored. The way in which a learner experiences or understands learning may significantly influence their way of engaging with learning in universities (Marton & Booth, 1997) and the subsequent quality of learning outcomes (Biggs & Tang, 2007). Therefore, the study aims to reveal the undergraduates' qualitatively different ways of learning or conceptions of learning (Marton & Booth, 1997), in a Chinese-Australian cooperative programme.

The research methodology adopted is phenomenography, a qualitative approach which has been often used to elicit and describe the limited number of qualitatively different ways people experience or understand some phenomena or aspects of a phenomenon around them. Data is collected through semi-structured interviews with a group of undergraduates and analysed following the phenomenographic principles to identify the referential and structural aspects of each conception. Ultimately seven main conceptions of learning and four sub-conceptions are identified. Generally speaking, the relationship between conceptions found is hierarchical, but the sub-conceptions or branches are also notable.

The study not only expands the research context of phenomenography, but also contributes to the understanding of Chinese undergraduates' conceptions of learning in a cross-cultural teaching and learning context. Given the close relationship between ways of experiencing or understanding learning and learning approaches, and consequently the quality of learning, the implications of the outcomes of this research for the improvement of learning and teaching in such programmes are explored.

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List of abbreviations

AUCC	Association of Universities and Colleges of Canada
BERA	British Educational Research Association
CEE	College Entrance Examination
CFCRS	Chinese-Foreign Cooperation in Running Schools
CHC	Confucian-Heritage Culture
COLI	Conceptions of Learning Inventory
EAIE	European Association for International Education
EU	European Union
GATS	General Agreement on Trade in Services
HE	Higher Education
HEI	Higher Education Institution
HEIs	Higher Education Institutions
IB	International Business
IELTS	International English Language Testing System
IET	International Economic and Trade
MOE	Ministry of Education
TNHE	Transnational Higher Education
WTO	World Trade Organisation
UK	United Kingdom
US	United States

Chapter 1. Introduction

1.1 An introduction to the study

Chinese universities are actively engaging in developing educational cooperation with overseas higher education institutions (HEIs) by means of joint institutions and programmes (Yang, 2014). However, the students' learning experience within such a cross-cultural setting remains unknown. The knowledge about the different ways of experiencing learning in this particular context could be valuable for the improvement of learning and teaching. The focus of this study is identifying and understanding a group of International Economics and Trade (IET) students' conceptions of learning in an undergraduate programme cooperatively run by a Chinese and an Australian university.

The learners enrolled on this programme are educated by both foreign and domestic lecturers. In the Chinese context, such a programme is named as Chinese-Foreign Cooperation in Running Schools (CFCRS) programme (Mok & Ong, 2014), which is a dominant strategy to implement higher education (HE) internationalisation. Learning in this study is not confined to a concrete concept (e.g. capital, cost, price, value) or a specific course (e.g. accounting, economics, marketing, statistics) in this discipline, but in a general sense (Beatty et al., 1997). Phenomenography is adopted as the research approach, since it provides a means to uncover people's ways of experiencing, conceptualising and understanding a specific phenomenon around them (Marton, 1994) and fits well with the purpose of this study.

1.2 Research context

As an international student, who has been studying in the UK since 2010, I have directly experienced, and benefitted from, the internationalisation of higher education. Having

moved from an undergraduate and postgraduate programme at a Chinese university to postgraduate study in the UK, I was aware both of pedagogic differences and differences in conceptions of learning of students in these different settings. These experiences raised a number of questions for me about the process of HE internationalisation and, in particular, the impact of this on student learning. This has subsequently become my research interest, which motivated me to conduct a doctoral study. As a Chinese student aspiring to a career in higher education in China, I was particularly concerned with internationalisation practice in Chinese universities. I attended several conferences relevant to Chinese HE internationalisation, such as the Annual Conference of Chinese-Foreign Cooperation in Running Schools organised by Xiamen University. It was becoming obvious that while political and managerial issues were often emphasised, the students became an unheard group and their learning experience was seldom mentioned, and was even less the focus for empirical investigation. Consequently the students and their learning experience came to form the central research theme to be explored in this thesis.

This section only briefly describes the context for this study. More contextual details will be presented in the next chapter.

This study examines learning in a cross-cultural environment. The specific research context entails the blending of teaching and learning elements where various cultural backgrounds are involved. A Sino-Australian IET programme has been chosen as a suitable research environment in that it facilitates and creates the particular situation of bringing together Australian lecturers, learning materials, and different pedagogy with local Chinese students. The programme is a practical strategy in response to HE internationalisation. It is, therefore, imperative to briefly depict background information on this worldwide phenomenon and position the programme on which this study focuses in relation to this.

Internationalisation in HE is an ongoing and continuous process in which cross-cultural

and global dimensions have been integrated to the aims and functions of HE (Knight, 2003). Although internationalisation in HE has turned into a key theme only since the mid-1990s (Teichler, 2005), this phenomenon is now becoming so widespread around the world that the international dimension has been generally believed to be highly significant for HE (van der Wende, 2010), and there is a growing body of research on this dimension of HE (Kehm & Teichler, 2007).

Undoubtedly, internationalisation has the potential to bring about two significant changes, which also underpin motivations for the engagement of many HEIs. First, the commercial and economic aspects of internationalisation in HE have been increasingly emphasised, revealing a trend towards the commercialisation or commoditisation of HE (de Wit & Adams, 2010). Internationalisation has been increasingly dominated by profit-making imperatives and initiatives, exporting education as a product and increasing income by enrolling a large number of overseas students (Jiang, 2008). Second, internationalisation is often regarded as a means to improve the quality of universities' academic performance and an indicator of quality education (van Damme, 2001). Improving HE quality via internationalisation is specifically applicable to some developing countries, where initiatives have been made to attract international students and diversify the composition of the learner body and gain international prestige (Altbach & Knight, 2007). Some countries like China also attempt to import education resources such as teaching staff, textbooks, and curricula from abroad to satisfy the academic needs of domestic learners.

Internationalisation in HE has greatly influenced some Asian countries as Chan (2013) notes; as a result a huge quantity of research papers, reports, programmes and initiatives have been produced in the past two decades in Japan, Taiwan, Singapore and Malaysia. China, which has been vigorously engaging in this global trend (Yang, 2014), coined a specific term to describe its international collaboration in education, *Zhongwai Hezuo Banxue* or Chinese-Foreign Cooperation in Running Schools. Even though this initiative covers diverse forms of implementation in practice, such as Chinese-Foreign

cooperatively-run universities and joint schools (Gide et al., 2010, Yang, 2014), CFCRS programmes predominate.

As an important strategy to implement internationalisation, the CFCRS programme is a joint venture between local Chinese universities and foreign or overseas HEIs, with the aim of educating Chinese students only (Hou et al., 2014). The goal is to introduce high-quality education resources from the developed countries to improve the competitiveness of Chinese HE (Zhou, 2006). To date, about 600 Chinese universities have built cooperative relationships with approximately 400 HEIs in 25 countries such as the United Kingdom (UK), United States (US), Australia, Canada, France, Germany, Russia, Ireland and New Zealand (Xinhuanet, 2015), most being English-speaking nations. At the undergraduate level, CFCRS programmes often take the form of '2+2' and '3+1'. The numbers before '+' refer to the years of study in local universities and the numbers after '+' signify the years of study in foreign universities. The popularity of these CFCRS programmes may be due to two reasons. First, students tend to pay lower tuition fees (Mok & Ong, 2014; Yang, 2008). Second, the programme can fulfil student dreams of learning in other countries (Mok & Ong, 2014).

Even though all student participants in the CFCRS programme are domestic, the teaching staff is composed of both foreign lecturers from partner universities and Chinese lecturers. The CFCRS initiative includes both language learning and specialised knowledge teaching in a foreign language, thus a cross-cultural education context begins to take shape (Hudson & Todd, 2000). Since such programmes aim to cultivate students' abilities to perform well in a cross-cultural context, the curricula are internationalised and encompass strong international content (van der Wende, 1996). While students are immersed in a Chinese environment in terms of culture and language in their daily lives, their learning takes place in an educational situation filled with western-style pedagogy, curricula and teaching materials. This is significantly different from the context of international programmes in the West, where learners coming from multiple nations are following the host country's pedagogy, curricula and

learning materials, though the potential commonality for both learners and lecturers is cross-cultural learning and teaching. Graduates are expected to obtain either an overseas university degree or double degrees from both local and foreign universities.

The CFCRS programmes in Chinese universities are built on certain disciplines. As Hou et al. (2014) note, the disciplinary distribution of undergraduate CFCRS programmes is very uneven, with most of them focusing on business-related areas. International Economics and Trade, according to the official statistics (www.jsj.edu.cn) is the most prevalent subject in the realm of business education. IET is a specific discipline created by Chinese educators and is equivalent to International Economics or International Business (IB) (Wang & Zhu, 2004). IET has a comprehensive nature and often touches some aspects of other business-related courses such as economics, trade, accounting, finance, statistics, marketing and management, but is not entirely equivalent to any of them. In the meantime, IET students are required to have good linguistic ability because of their potential work with international features. With China's deepening engagement in the global economic cooperation and competition, the need for talents who can grasp international business regulations and skilfully deal with business affairs in international environment arises.

1.3 Research questions

As stated above, educators as well as researchers have little knowledge regarding the learning experiences of students enrolled on CFCRS programmes. Having a clearer and more detailed understanding of students' conceptions of learning could make an important contribution to the quality of teaching and learning. Thus the aim of this research is to develop a comprehensive understanding of the ways in which students experience learning in such programmes by addressing the following question:

- *What are the conceptions of learning held by IET students in the CFCRS programme?*

To identify the conceptions of learning held by IET students is a major purpose for this study. Moreover, the potential relationship between these different ways of experiencing learning or learning conceptions (Marton & Booth, 1997) is also revealed on the basis of an in-depth analysis. The structural relationship not only constructs a holistic picture of how students experience learning in the CFCRS programme investigated, but it also helps to better understand each conception in relation to its position in the structure. Consequently, this research will also seek to address the question:

- *How are the various conceptions of learning found in this study related?*

Gaining knowledge of students' learning conceptions enables educators to take into account these experiences and perceptions of learning to inform the development and improvement of learning and teaching in CFCRS programmes.

Note that learning is broadly conceived, and the student participants in this study will be free to choose any aspect or dimension they wish to comment on or use in expressing their views on learning. As stated, learning in this study is not confined to a concrete concept or a specific course, but is understood in a more general sense. To address the two research questions above, the study seeks to examine the ways in which a group of IET students experience learning in a Sino-Australian cooperative programme. It does not attempt to focus on a specific feature of the programme, nor does it intend to specifically explore the relationship between particular elements of the programme and learning. Taking assessment as a particular example, though the relationship between forms of assessment and students' learning conceptions is not a central focus, assessment may have a significant impact on students' learning experience. However, this impact could be very occasional and unstable. Some learners may hold certain learning conceptions when they are in an assessment situation, while expressing different ways of experiencing learning in other contexts. This study does

not reject the influence of specific features, such as assessment and examinations, but rather focuses on the resulting range of conceptions of learning that develop in the face of multiple influences within the specific setting of an international programme. As will be seen later in the thesis, some conceptions of learning were related to particular features of or contexts within the programme (and one conception is related particularly to assessment). It is the variety of conceptions of learning, rather than specific features of the programme or the relationship between programme's particular elements and learning, that is the central concern of this phenomenographic study.

1.4 Research approach

The central focus for this study is CF CRS programme IET students' learning conceptions and the potential relationship therein. For this aim, the study employs phenomenography as the research approach. Phenomenography is a qualitative research approach which enables researchers to map, conceptualise and understand the qualitatively different ways a group of individuals experience a phenomenon in question or certain aspects of a phenomenon (Marton, 1986). So far phenomenography has been widely used to uncover people's conceptions of a given phenomenon, and the appropriateness and usefulness of this approach to interpret qualitative variations in students' conceptions of learning has been confirmed by a number of studies (Asikainen et al., 2013; Boulton-Lewis et al., 2000, 2008; Byrne & Flood, 2004; Franz et al., 1996; Marton et al., 1993; Paakkari et al., 2011; Pillay & Boulton-Lewis, 2000; Sharma, 1997). By revealing and interpreting the variations of views on learning, these research studies have offered insights into understandings of what has been focused on and how students see the phenomenon of learning in different contexts. Chapter 4 will discuss the reasons for employing phenomenography and present more details of this research approach.

1.5 Significance of the study

First, the study complements HE internationalisation research by providing micro-level insights into students' conceptions of learning. At present, research on the internationalisation of HE in China has predominantly been occupied by 'big topics' such as policy making, national strategic planning, institutional management and organisational adaptation. However, understanding and knowledge on how students experience, understand and conceptualise learning or conceptions of learning (Marton & Booth, 1997; Sandberg, 2000) under such a cross-cultural educational environment is limited because of the dearth of relevant research. It is argued here that students' conceptions of learning have to be identified and understood if the quality of education as a whole is to be improved. The emphasis on national and institutional matters neglects students as key stakeholders experiencing internationalised learning at grass-roots level.

Van der Wende (1994) has pointed out that strategies implemented to achieve internationalisation could impact not only on the macro level, namely national and institutional policies and strategies, but also the meso level, for example the curricula, and the micro level, such as classroom teaching and learning activities. Adopting this perspective, one would find the research on university internationalisation in contemporary Chinese academia to be problematic in that it focuses excessively on the macro level while overlooking other key components and stakeholders.

In a western context, Kehm and Teichler (2007, p.264) identify seven broad themes to characterise the landscape of internationalisation of HE while reviewing the relevant publications:

- Mobility of students and academic staff.
- Mutual influences of higher education systems on each other.
- Internationalisation of the substance of teaching, learning, and research.

- Institutional strategies of internationalisation.
- Knowledge transfer.
- Cooperation and competition.
- National and supranational policies as regarding the international dimension of higher education.

Kehm and Teichler (2007) further point out the importance of the third theme, internationalisation of the substance of teaching, learning, and research. Significant subthemes are “internationalisation of curricula, quality of international programmes, internationalisation at home, the role of foreign language knowledge and teaching and learning in a foreign language, and joint and double degree programmes” (Kehm & Teichler, 2007, p.265). Though the third theme is becoming increasingly critical, issues related to policy, economy, organisation and management are still attracting a majority of scholars in this field (Luxon & Peelo, 2009). As Svensson and Wihlborg (2010, p.595) contend, ‘the dominant discourse on internationalisation of higher education in research and research-based discussions tends to be framed by political, economic and organisational perspectives, rather than informed by educational consideration’.

As Lewis et al. (2013) have noted, the paramount element of any education is often what occurs in the classroom. Luxon and Peelo (2009) warn that a gap between policy and implementation might emerge if the issues at the teaching and learning level remain ignored and unsolved. These central education activities “must be made explicit and brought to the forefront of the discussion” (Luxon & Peelo, 2009, p.51) if internationalisation is to be made meaningful. Therefore, micro-level ‘small issues’ such as learning do matter and much has yet to be done.

Furthermore, there is a problem with the research perspective as Wihlborg (2009) notices that most studies adopt an organisational focus whilst ignoring the lecturers’ and students’ perspectives. In other words, the pedagogical perspective has not been fully emphasised in internationalisation studies. The argument is echoed by Ojo and

Booth (2009), who further contend that both organisational and pedagogical perspectives are equally important. Therefore, Wihlborg (2009, p.117) calls for a shift in research perspective, “from an overall external perspective to a relational, experienced and context-based perspective”. The shift would inform policy making on the internationalisation of HE such that learners would become critical stakeholders whose views would to be taken into account to form a wider context (Ojo & Booth, 2009) and a more comprehensive picture (Wihlborg, 2009).

This study complements macro- and meso-level analysis of HE internationalisation by providing micro-level insight into students’ conceptions of learning or ways of experiencing learning (Marton & Booth, 1997). The study is based on an empirical inquiry which aims to better comprehend students’ ways of seeing learning.

Second, the study concerns a unique cross-cultural context which has barely been touched. Conceptions of learning are contextually dependent and may vary in distinct contexts (Åkerlind, 2005a; Byrne & Flood, 2004; Dahlin & Regmi, 1997; Eklund-Myrskog, 1997; Purdie & Hattie, 2002; Säljö, 1987). The contexts could refer to different programmes of study, disciplines, student cohorts and cross-cultural contexts. Thus it would be interesting to examine the potential variations of conceptions of learning in contexts seldom touched by researchers such as the CFCRS programmes in universities in mainland China.

Previous research studies have mainly concentrated on western contexts (e.g. Asikainen et al., 2013; Marton et al., 1993; Virtanen & Lindblom-Ylänne, 2010), where findings show great homogenisation. Numerous research studies have also been carried out in non-western countries and areas such as Nepal (Dahlin & Regmi, 1997; Watkins & Regmi, 1992) and Hong Kong (Fung et al., 2001). Such studies have been informative and offer alternative insights into conceptions of learning. The studies illuminate learners in the West and East may experience and comprehend a shared phenomenon differently. More importantly, these studies make clear that conclusions drawn from

western countries cannot be entirely generalised to other places in the world.

It is noteworthy that the research studies mentioned above focus exclusively on either the West or the East context. The current research, however, interrupts this polarised trend. In the area of Chinese HE, internationalisation is the result of developing a cooperative relationship with different countries. Internationalisation has created a new culturally blended situation where all the students are Chinese but the learning materials and a majority of teaching staff are from abroad. Of especial interest is how local students experience and understand learning while facing overseas lecturers and using a language with which they are unfamiliar. Researching such a new and ongoing learning situation in HE offers an opportunity to extend the contextual scope of learning conceptions studies.

Third, the significance of this study also lies in the argument that the ways in which an individual experiences, understands and conceptualises a certain phenomenon may remarkably influence their ways of dealing with it (Marton & Booth, 1997). Conceptions of learning imply what learning means to learners or the ways in which learners view or conceptualise the phenomenon of learning. In an experiential sense, 'a way of experiencing', 'a way of understanding' and 'conceptualisation' can be used interchangeably, all of which can be synonyms for the notion of conception (Marton & Booth, 1997).

In the field of education, understanding that ways of experiencing or conceptualising affects ways of handling is of important pedagogical value. People dealing with a common problem differently must also experience it differently and in order to understand how people deal with certain problems researchers have to make sense of the ways they experience them. A way of handling reflects a way of experiencing or understanding.

Marton and Booth (1997, p.111) contend that:

[...] we are able to infer that two students dealing with a problem differently must also have experienced it differently. This type of argument gives us grounds to believe that in order to make sense of how people handle problems, situations, the world, we have to understand the way in which they experience the problems, the situations, the world, that they are handling or in relation to which they are acting. Accordingly, a capability for acting in a certain way reflects a capability experiencing something in a certain way.

Similarly, Bowden and Marton (2004, p.29) also deem that:

In order to handle a certain situation in a certain way you must experience it in a certain way. An important difference between being able to do something and not being able to do it lies in the difference between being or not being able to see or experience something in a certain way.

The argument may also be applicable in the area of education. As Meyer and Boulton-Lewis (1999, p.289) write:

It is becoming widely accepted that university lecturers should be sensitive to their students' knowledge of their own learning, as well as to their students' conceptions of what 'learning' is. The externalisation of such knowledge and conceptions is of strategic importance because, theoretically, such prior knowledge influences how students engage the content and context of learning, as well as resultant outcomes.

It is relatively easy to observe the distinctive ways in which students deal with certain learning tasks, but it is not at all easy to observe the way they experience and understand them. Being invisible does not mean insignificant, rather it could be even

more important as a precondition for their behaviours. The lecturers who teach in HEIs are expected to have a clear understanding of students' knowledge of their own conceptualisation of learning. This is important because it has strong practical implications for approaching learning tasks and furthering the outcomes of learning (Asikainen et al., 2013; Meyer & Boulton-Lewis, 1999). The detailed examination of undergraduates' learning experiences offers first-hand evidence that may help to improve teaching and learning quality in the context of a cross-cultural educational environment.

1.6 Outline of the study

The thesis is organised into eight chapters. While the present chapter outlines a general picture of the research, Chapter 2 provides the context in which the study is carried out. The theories and strategies of internationalisation of HE are reviewed and contextual information is provided about the programme investigated. Chapter 3 offers a comprehensive review of conceptions of learning, where relevant theoretical and empirical works are critically examined. As the adopted research approach, phenomenography is introduced in Chapter 4, which presents an analysis of phenomenography from several aspects. The comparison in this chapter made between phenomenography, grounded theory and phenomenology helps to highlight and better understand the approach used in this study. Based on discussing and comparing several theoretical frameworks, the referential/structural framework is chosen as the analytical tool for analysing learning conceptions in this study. Chapter 5 provides details of the implementation of the research. This begins with a review of the trials and pilot study, and then elaborates on how the data were collected and analysed, followed by an explanation of quality-related issues such as validity, reliability, generalisability and ethical concerns. The conceptions of learning found in this study are presented and interpreted along with quotations from the participants in Chapter 6. Chapter 7 presents an in-depth analysis of the findings. Each conception of learning

is examined in relation to the existing literature, and their relationship is discussed. The final chapter revisits the research question before outlining the contributions and implications of the study. The limitations of the study and suggestions for subsequent research are also discussed.

Chapter 2: Internationalisation of higher education in China

2.1 Introduction

The aim of this chapter is to outline the research context of this study in order to gain understanding of CFCRS programmes in the Chinese HE system which are at the heart of this study. Existing theories of the internationalisation of HE help to understand this worldwide phenomenon. However, most of these conceptualisations have been generated in the western settings; thus, it may be inappropriate to apply them to the Chinese context. Therefore, an overview of the local situation in China is also required.

The first section in this chapter examines the definition of internationalisation in the context of HE. The second section explores several rationales for this global trend, drawing on research conducted across the two decades since the 1990s. The Chinese situation is further explicated in combination with these western conceptualisations. The third section addresses the distinctive Chinese response to internationalisation, namely, Chinese-Foreign Cooperation in Running Schools or CFCRS (*Zhongwai Hezuo Banxue*). This is a general initiative that covers a wide range of different forms of educational practice, including Chinese-Foreign cooperatively-run universities, affiliated schools or colleges and CFCRS programmes. Accompanied by a series of policy changes, the appearance and growth of CFCRS can be attributed to several motivations at both institutional and national levels, and while the CFCRS has made a clear contribution to Chinese education, numerous problems have been evident during its development. The last section of this chapter presents an overview of the particular CFCRS programme investigated in this study. The description includes several themes, such as the selected programme's appropriateness for this study, the discipline, the overall educational aims, the characteristics of students and teaching staff, curricula, pedagogy and assessment.

2.2 Defining internationalisation in the context of HE

According to de Wit (1995, p.16), there is no “simple, unique or all-encompassing definition” of internationalisation in the field of HE studies. The most frequently-cited definition is that internationalisation of HE involves “the process of integrating an international/intercultural dimension into the teaching, research and service functions of a university or college” (Knight, 1994, p.3). Furthermore, Knight (1994, p.3) explains that “an international dimension means a perspective, activity or service which introduces or integrates an international/intercultural/global outlook into the major functions of an institution of higher education”.

In educational practice, internationalisation is generally regarded as a means by which the aim to enhance the quality of teaching and research and re-construct HE can be realised (van der Wende, 1997). Knight (2003, p.2) responds to this understanding of internationalisation by updating the definition, claiming that “[i]nternationalisation at the national, sector, and institutional levels is defined as the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education”. According to this definition, Knight suggests that the process of internationalisation is ongoing and continuous. International, intercultural, and global dimensions demonstrate the considerable breadth and depth of internationalisation. The concept of integration implies the infusion of internationalisation into policies and programmes in order to guarantee its central position. The breadth of terms such as purpose, function and delivery is wider than that of teaching, research and service functions posed in the previous definition (Knight, 1994) and focuses narrowly on HEIs. Such terms can be utilised at institutional and sectoral levels in the wide field of post-secondary education (Knight, 2003, 2004).

According to the following statement by Yang (2002, p.83), the concept of

internationalisation may mean different things to each university, as well as to the whole HE system within a specific country:

For a university, internationalisation means the awareness and operation of interactions within and between cultures through its teaching, research and service functions, with the ultimate aim of achieving mutual understanding across cultural borders. For a national higher education system, internationalisation refers to dialogue with those in other countries.

Some international organisations have their own way of understanding internationalisation beyond the research community. For example, the European Association for International Education (EAIE) notes that the concept of internationalisation encompasses a wide range of actions. However, according to the Association of Universities and Colleges of Canada (AUCC), there is no way to give a universal definition.

Internationalisation is intimately linked to, yet different from, globalisation. Knight (1997, p.6) argues that:

[g]lobalisation is the flow of technology, economy, knowledge, people, values, ideas [...] across borders. Globalisation affects each country in a different way due to a nation's individual history, traditions, culture and priorities. Internationalisation of higher education is one of the ways a country responds to the impact of globalisation yet, at the same time respects the individuality of the nation.

Hence globalisation is a flow of key elements among different countries, whereas the internationalisation of HE is a response to globalisation based on the situation of an individual country. Globalisation is catalyst, while internationalisation is an active

reaction (Knight, 1999). Teichler (2004, p.7) deems that globalisation is replacing internationalisation and compares them by claiming that first, “internationalisation tends to address an increase of border-crossing activities amidst a more or less persistence of national systems of higher education”, whereas “globalisation tends to assume that borders and national systems as such get blurred or even might disappear”. Teichler (2004, p.7) continues by arguing that “internationalisation is often discussed in relation to physical mobility, academic cooperation and academic knowledge transfer, as well as international education”, while “globalisation is often associated with competition and market-steering, trans-national education, and finally with commercial knowledge-transfer”. Altbach and Knight (2007, p.290) define these two elements separately:

Internationalisation includes the policies and practices undertaken by academic systems and institutions—and even individuals—to cope with the global academic environment. [...] We define globalisation as the economic, political, and societal forces pushing 21st century higher education toward greater international involvement.

Altbach and Knight (2007) regard internationalisation as a strategy adopted by educational systems, institutions and individuals to cope with the new environment created by globalisation; yet, globalisation refers to a sort of power facilitating the international involvement of HE in the new age.

While these arguments illustrate differences between globalisation and internationalisation, these two concepts are clearly interdependent. As Knight (1999, p.14) claims, they are “different but dynamically-linked concepts”, and she later states that “[i]nternationalisation is changing the world of higher education, and globalisation is changing the world of Internationalisation” (Knight, 2008, p.1). Both of these phenomena undoubtedly influence HEIs in the modern world by facilitating the movement of talents, academic communication, and the dissemination of international

programmes.

The aim of this study does not involve analysing and exploring the definition of internationalisation in HE. Given its complex nature, I am in agreement with Yang (2002, 2014) that internationalisation may mean different things to different universities and countries; therefore, it is necessary to tailor the concept to the context and environment being studied. In this case, the study focuses on a Sino-Foreign cooperative programme in one Chinese HEI and refers only to certain aspects of internationalisation. With regard to the programme under investigation, internationalisation refers to the process of achieving a mutual understanding between different cultures thereby cultivating an international horizon and awareness through teaching and learning.

2.3 Rationales for internationalisation

A number of researchers contend that there are four major rationales for the internationalisation of HE, namely political, economic, cultural and social, and academic and educational (de Wit, 1995, 2002; Knight & de Wit, 1997); however, it is worth noting that these are fundamental rationales. More specifically, de Wit (2002) elaborates these four rationales in detail, and argues that they should be complemented by subcategories (see Table 2.1).

Rationales	Subcategories
Political	Foreign policy
	National security
	Technical assistance
	Peace and mutual understanding
	National identity
	Regional identity
Economic	Economic growth and competitiveness
	Labour market
	National educational demand
	Financial incentives for institutions and governments
Cultural and Social	Cultural rationales
	Social rationales
Academic	Providing and international dimension to research and teaching
	Extension of the academic horizon
	Institution-building
	Profile and status
	Enhancement of quality
	International academic standards

Table 2.1 Rationales for the internationalisation of HE

Source: de Wit (2002, pp.85-99)

Knight (2004) revised this categorisation by combining existing rationales for internationalisation at national and institutional levels and adding two levels of rationale, namely national and institutional. Knight argued that it is important to analyse internationalisation in terms of this more detailed classification.

Rationales	Existing-National and Institutional Levels Combined
Social/cultural	<ul style="list-style-type: none"> ● National cultural identity ● Intercultural understanding ● Citizenship development ● Social and community development
Political	<ul style="list-style-type: none"> ● Foreign policy ● National security ● Technical assistance ● Peace and mutual understanding ● National identity ● Regional identity
Economic	<ul style="list-style-type: none"> ● Economic growth and competitiveness ● Labour market ● Financial incentives
Academic	<ul style="list-style-type: none"> ● International dimension to research and teaching ● Extension of academic horizon ● Institution building ● Profile and status ● Enhancement of quality ● International academic standards
Level	Of Emerging Importance-National and Institutional Levels Separated
National	<ul style="list-style-type: none"> ● Human resources development ● Strategic alliances ● Commercial trade ● Nation building ● Social/cultural development
Institutional	<ul style="list-style-type: none"> ● International branding and profile ● Income generation ● Student and staff development ● Strategic alliances ● Knowledge production

Table 2.2 Rationales driving internationalisation

Source: Knight (2004, p.23)

In addition to these rationales, there are two indispensable factors, the first of which is the aspiration of individuals. A growing number of students and researchers not only want to experience an unfamiliar environment and seek unknown knowledge to satisfy their curiosity of a foreign culture, they also wish to independently choose the country in which to study their academic area of interest. Furthermore, contemporary information and communications technology coupled with advanced transportation technology could be regarded as catalysts of internationalisation, since they facilitate

communication among students, researchers and organisations around the world (Gornitzka & Langfeldt, 2008).

Despite the diversity of the aforementioned rationales, they are increasingly correlative rather than mutually exclusive, thereby blurring the boundaries between them (Knight, 1999). It may be unrealistic, therefore, to separate one from another. Additionally, the dynamic nature of these rationales is worth considering, since they are likely to change over time and vary between different nations and regions (de Wit, 2010).

2.4 Implementing internationalisation in the context of Chinese HE

– CFCRS

There are various forms and strategies of internationalisation in Chinese HE such as students and scholars' mobility, academic cooperation and joint research (Huang, 2007). Noticeably, Huang (2007, 421) claims that “transnational higher education (TNHE) has become an increasingly important and integral part of internationalisation of higher education”.

In the Chinese HE sector, TNHE is commonly known as Chinese-Foreign Cooperation in Running Schools (Fang, 2012; Hou et al., 2014; Ong & Chan, 2012), which is composed of joint institutions and joint programmes (Yang, 2014) and also a crucial means to internationalise Chinese universities (Huang, 2007). As Tan (2009, p.166) claims, “[w]ith the acceleration of the internationalisation process of higher education in China, the Chinese-foreign cooperation in running schools (CFCRS) has been developing at an expeditious pace nowadays”. CFCRS institutions and programmes, together with public and private universities are critical components of the Chinese HE (Xue, 2016). This section provides background information centred on the CFCRS, including motivations, practical forms, policy development and achievements and challenges.

2.4.1 Motivations of CFCRS

Historically, Chinese HE began to seek international cooperation when the national 'Open-Door Policy' was implemented in 1978 (Hou et al., 2011; Wang, 2008). However, at that time, the motivation was a strong political drive to achieve national reform of the 'Four Modernisations', namely, the modernisation of industry, agriculture, national defence, and science and technology, as a result of which thousands of students and scholars were sent abroad to learn in English-speaking countries (Zheng, 2009).

The recent development in China, in response to the tide of internationalisation worldwide, is in the form of a specific initiative entitled *Zhongwai Hezuo Banxue*, which can be expressed in English as Chinese-Foreign Cooperation in Running Schools or CFCRS. This initiative exemplifies HE internationalisation in the Chinese context. In HE sector, it refers to the activities of the cooperation between foreign educational institutions and Chinese educational institutions in establishing educational institutions within the territory of China to provide education service mainly to Chinese citizens (China State Council, 2003). Hou et al. (2014, p.308) claim that

'Running schools' is the English translation of Chinese 'Ban Xue' in the government regulation. It refers to the phenomenon that Chinese universities and foreign universities cooperate to set up programmes or institutions to recruit Chinese students.

There are several significant motivations for the appearance and development of the CFCRS, most of which exemplify the scholastic arguments (de Wit, 2002; Knight, 2004) summarised above.

That the emergence of CFCRS is a consequence of economic globalisation (Lin & Liu, 2007b) as demonstrated by the entry of China to the World Trade Organisation (WTO) which was a critical precondition of Sino-Foreign cooperation in education (1996); in

other words, the CFCRS is essentially a consequence of the implementation by China of its WTO commitments. This supports the view that the unprecedented level of commercial trade around the world as a key rationale driving internationalisation (Knight, 2004) has influenced HE in China. Defined as “a multilateral agreement through which WTO members commit to voluntary liberalisation of trade in services” (Ziguras, 2003, p.89), the General Agreement on Trade in Services (GATS) regards education as a service (Chen, 2011) and divides it into five areas, primary, secondary, higher, adult and others. The implementation of GATS is compulsory when joining the WTO; thus, the Chinese government gave “a green light to transnational higher education under the legal framework of the international agreement” (Mok & Ong, 2014, p.137).

The education authorities in China legally permit foreign institutions to build branch campuses in cooperation with their Chinese counterparts, yet overseas universities are not allowed to operate their campuses independently according to Chinese law. Moreover, the policy named the *Regulations of the People’s Republic of China on Chinese-Foreign Cooperation in Running Schools* (China State Council, 2003) also “calls for no fewer than half the members of the governing body of the institution to be Chinese citizens, and the post of president or the equivalent be a Chinese citizen residing in China” (Yang, 2014, p.156). These regulations have been put in place out of the fear of losing educational sovereignty and the desire to maintain Chinese socialist ideology (Yang, 2014). It can be seen, therefore, that a national security factor might play a pivotal political role in HE internationalisation (de Wit, 2002).

The appearance of CFCRS can also be attributed to the massification of Chinese HE (Lin & Liu, 2007b). This massification of education has stimulated national demand (de Wit, 2002) for internationalising universities. The past decade has witnessed excessive student enrolment in HE and many Chinese HEIs have enrolled more students than ever before. Lin and Liu (2007a) state that the Chinese HEIs have continuously and significantly expanded the enrolment for seven years since 1999, which is unprecedented in the history of Chinese HE. But on the other hand, the consideration

given to the universities' educational quality is insufficient. The result of accelerated student enrolment has shown to be much greater than the availability of educational resources. This has inevitably led to the emergence of problems such as the inability to satisfy student demands, and the lack of flexibility and innovation in terms of educational concepts, curricula, methods of educating, teaching content and skills. As Lin and Liu (2007a, p.2) note, the "deterioration of education quality not only hindered the development of mediocre educational institutions, but also 'elite universities' which should have been doing high-quality academic research and world-class professional training". Thus the improvement of HE quality was prioritised as indicated in the government's 11th five-year plan (Lin & Liu, 2007a).

By importing high-quality educational resources from abroad to promote educational reform and improve the academic level of Chinese HE, the establishment of CFCRS is an effective way to improve HE in China. The quality of educational resources offered by foreign universities, in particular the West, is extremely attractive to the government, universities and students in mainland China. Lin and Liu (2007a, p.1) contend that high quality education resource refer to "educational programmes of successful management experiences that are distinctive worldwide" and it "includes superior curricula, teaching method, administration system, assessment system, well-qualified faculty, and more effective way to cultivate talents". To import the resource is the top priority for the development of CFCRS (Wang, 2007). This priority is closely related to what de Wit (2002) and Knight (2004) call the academic rationale, such as the infusion of an international dimension to teaching and learning, the extension of academic horizons, the improvement of the profile and status of institutions, the enhancement of international academic standards and the furthering of quality as a whole. First, the different education style of other countries', particularly the western style, emphasises internationalisation, independent thinking and high autonomy, which may better match the requirements of contemporary HE. Second, the adoption of CFCRS may facilitate the enhancement of the teaching capacity of Chinese academics. While dispatching domestic lecturers to be trained abroad may be a sound approach, it is currently

unrealistic due to the limited financial resources of HEIs. With CFCRS, domestic and foreign lecturers are able to communicate with each other and discuss aspects of teaching in an international context, thereby enhancing the professional capability of Chinese teaching staff. Third, distinctive syllabi, teaching techniques and textbooks from other countries may be introduced with the importation of quality curricula and teaching materials, thus complementing and broadening the learning content. Finally, mature management modes and experience could also be introduced, for example, in terms of student assessment. The dominant mode of student evaluation in China is one final examination, but its effectiveness is open to question; thus, such examination may be improved by borrowing other forms of assessment from western-style evaluation.

The adoption of quality educational resources from foreign HEIs may also promote a sense of competition between individual universities and further promote the reform and development of Chinese HEIs as a whole (Hong, 2015). Xiong (2015) observes that international cooperation in universities and colleges represents an openness in education. While new educational ideas, experiences, teaching and learning methods and managerial initiatives introduced from abroad will attract potential learners, fewer students might choose to follow traditional Chinese HE. The potential danger that traditional Chinese HE might dwindle will undoubtedly prioritise change and improvement in institutions in China. The competition-reform process involves several sub-categories of academic rationales such as institution building, profile and status enhancement, improvement of quality and the adoption of international academic standards (de Wit, 2002; Knight, 2004).

While the foreign quality education resources are often emphasised as a major concern, the motivations for Chinese universities to cooperate with other universities can be more complex than expected (Zheng, 2009). This has confirmed the standpoint made by de Wit (2010) that the rationales driving internationalisation are changing, and they might differ between nations and regions. In a recent study, Fang (2012, p.17) claims that “teaching universities want more to use transnational higher education

programmes to obtain a high quality of education, to increase their revenue and reduce their costs”, whereas research universities “tend to want more to use transnational higher education programmes to promote their reputation and cultivate cross-cultural knowledge”. This difference illustrates that, although the motivation to adopt CFCRS appears to be universal, individual institutions may have their own reasons for doing so.

Foreign partner universities also have different motives for engaging in CFCRS (Li & Wang, 2009), one of the most significant of which relates to their economic interests. This corresponds to the argument made by de Wit (2002) and Knight (2004) that financial incentive or income generation at the institutional level is a crucial element of the economic rationale for internationalisation. Undoubtedly, there may be multiple reasons for adopting the CFCRS, such as political and academic requirements; however, many overseas institutions have increasingly viewed HE as a crucial export industry and actively pursued cross-border partnerships with numerous developing countries such as China since the 1990s. Therefore, the meeting of these two education systems makes it possible to develop a pragmatic transnational cooperative relationship.

2.4.2 Forms of CFCRS in HE

The CFCRS is a general initiative that encompasses three major forms of implementation strategies in HE (Gide et al., 2010), the first of which is the Chinese-Foreign cooperatively-run universities, which are built by both Chinese and overseas HEIs and authorised by the Chinese Ministry of Education (MOE). They are independent in terms of “independent legal personality” (Iftekhar & Kayombo, 2015, p.79) as they are essentially the overseas campuses but being cooperatively run by both Chinese and non-Chinese universities. The other aspect of independence is embodied in the educational management, as Lin and Liu (2007a, p.3) contend that such Sino-Foreign universities “have the autonomy to design their own curriculum and choose curriculum materials and most of the administration and management of the schools are

implemented through the broad committee of the schools". Established in 2004, the University of Nottingham Ningbo China is the first attempt which is cooperatively operated by the University of Nottingham UK and Zhejiang Wanli University (see Appendix I for details of this university). There are currently seven Chinese-Foreign cooperatively-run universities in mainland China, including the University of Nottingham Ningbo China, Xi'an Jiaotong-Liverpool University, Wenzhou-Kean University, New York University Shanghai, Beijing Normal University-Hong Kong Baptist University United International College, the Chinese University of Hong Kong (Shenzhen) and Duke Kunshan University.

The second cooperative form is affiliated colleges or schools, for instance, the University of Michigan-Shanghai Jiaotong University Joint Institute (UM-SJTU Joint Institute). Gide et al. (2010) name it 'joint schools', which are established within Chinese universities by both Chinese and international education service providers. That is, these affiliated colleges are often established by a department or college in a Chinese university in association with a foreign educational organisation, usually a university. They are non-independent in the sense that they do not have "independent legal status" (Lin & Liu, 2007a, p.3) and are subject to the jurisdiction of the home university (see Appendix II for an example of UM-SJTU Joint Institute).

The third and also the most prevalent cooperative form is the CFCRS programme (*Zhongwai Hezuo Banxue Xiangmu*), which refers to the transnational programme cooperatively held by Chinese and foreign/overseas universities and located in Chinese universities (Yang, 2014) (see Appendix III for an example). These cooperative activities usually take the form of joint degree programmes and dual degree programmes in Chinese public universities (China State Council, 2004). Wang (2012) notes that the CFCRS programmes, resulting from agreements-based cooperative education activities between Chinese and foreign HEIs to achieve expected educational goals, are established in Chinese universities without the need to set up new Chinese-Foreign cooperatively-run universities. Lin and Liu (2007a, p.3) claim that such programmes are

“curriculum programmes in which foreign education institutions cooperate with China’s institutions located in mainland China to provide curriculum mainly to Chinese students and have neither independent campus nor independent administration”. Current CFCRS programmes in HE mutually endorse the credits and degrees of the cooperating universities. In practice, the student participants of the so-called ‘2+2’ and ‘3+1’ programmes spend two or three years attending a home university before being transferred to the partner university to complete their study. In other words, the programme students “undertake some of their education in their home countries and some in the foreign providing country” (Hou et al, 2014, p.301). Other programmes, usually ‘4+0’, require undergraduates to study at a Chinese university for the whole four years, but the teaching and learning encompass both Chinese and foreign culture. Despite the diverse forms of HEI cooperation, it is evident that the input and involvement of foreign educational resources, including ideas and thoughts, academics, textbooks, teaching and learning methods, and assessment, are key to such programmes. To date, the CFCRS programmes in HE have attracted approximately 460,000 Chinese learners (Li, 2015), who hope that they will be able to understand what overseas study looks like and gain experience that will benefit their future lives and the development of China.

2.4.3 National policy development

Policy at the national level refers to “[e]ducation and other national level policies relating to international dimension of higher education, i.e., cultural, scientific, immigration, trade, employment policies” (Knight, 2006, p.223). Since this updated definition of HE internationalisation explicitly covers national and sectoral levels, it is necessary to take into account policy development.

The development of CFCRS in mainland China has been the basis of policy change. Many prestigious educational institutions, such as Renmin University of China in Beijing and

Fudan University in Shanghai, began to seek educational cooperation with HEIs in other countries as far back as 1978. Although these transnational activities connected HEIs internationally, they were restricted to several key Chinese institutions. Meanwhile, China had no policy to regulate international education at that time. However, with the increase in the number of Chinese-Foreign cooperatively-run universities, affiliated colleges and CFCRS programmes between the 1980s and early 1990s, relevant regulations, which stipulated the significance, principle, scope, category and body of cooperative education, were issued in 1993 (Zhang, 2006).

The *Interim Provisions for Chinese-Foreign Cooperation in Running Schools* (MOE, 1995) document, which contained the principles, power of examination, approval and procedure, as well as management structure, was the first national policy aimed at CFCRS (Yang & Tang, 2012). It was at this time that the official definition of CFCRS emerged (Mok & Ong, 2014). These provisions contained clear policy guidance and a formal management guarantee, thereby promoting the development of CFCRS (Tan, 2010).

The most important policy is the *Regulations of the People's Republic of China on Chinese-Foreign Cooperation in Running Schools* (China State Council, 2003). This policy encompassed several key points. First, it was clarified that CFCRS should be fit to develop Chinese education and able to foster the talents demanded by society. Second, the state council and local government were responsible for the planning, coordination and management of CFCRS. Third, the nation encouraged the adoption of CFCRS to acquire those advanced educational resources that were in high demand. In order to enhance the effectiveness of this significant policy, the *Implementation Measures for Regulations of the People's Republic of China on Chinese-Foreign Cooperation in Running Schools* (MOE, 2004), was enacted in the following year. Thus, systematic and explicit regulations were formulated for the establishment, organisation, activities, approval of programmes and the management and surveillance of all relevant agencies.

The *Regulations of the People's Republic of China on Chinese-Foreign Cooperation in Running Schools* granted the CFCRS legal status and promoted its development. Enacted in 2006, *Opinion on Some Issues Concerning Chinese-Foreign Co-operation in Running Schools* (MOE, 2006) reiterated a number of critical questions regarding, for example, the introduction of quality educational resources and the fostering of talents. However, the value of this policy document lay in its stipulation of quality supervision. The MOE stated that several management aspects should be subjected to quality monitoring, including enrolment, certification, and the planning and guidance of certain disciplines (Wang & Li, 2013).

According to Huang (2003, p.202), the CFCRS “developed from an incidental, informal and laissez-faire phase” to a “more structured, systematic, well-supported and regulated phase”. The original scale CFCRS was small and fragmented with policy-makers acting as observers and perceiving no need for national legislation. Then, with the rapid growth of CFCRS, the authorities began to intervene. The authorities cautiously encouraged international partnerships between Chinese HEIs and universities in other countries around the world, which resulted in an enhanced legal status of CFCRS, and CFCRS changed from being a ‘supplement’ to a ‘component part’ of holistic Chinese education system. Meanwhile, more rigorous and detailed policy documents should be in place to better regulate and monitor the CFCRS (Wu et al., 2010).

Enacted in 2010, the *National Outline for Medium and Long-term Education Reform and Development (2010-2020)* (China State Council, 2010) is the latest national policy document pertinent to CFCRS. The government will continue to encourage and promote the cooperative partnership between Chinese and non-Chinese HEIs. Meanwhile, the transnational cooperation is expected to develop China's economy through the importation of high quality educational resources to better educate youngsters. The threshold for cooperation is going to be raised, which implies that only the prestigious non-Chinese partners can be permitted to get access to the Chinese HE

and find a partner university.

The policies depicted above were the most influential during the growth of CFCRS between 1990s and the new century. However, this story has yet to end, since new challenges are bound to appear in the future and government policy will be required to meet them. Policy needs to be proactive and better regulate the development of CFCRS.

2.4.4 Contributions and challenges of CFCRS

CFCRS has brought about several actual benefits. First, to some degree, the introduction of high quality foreign educational resources to Chinese HE is beneficial in the sense that it improves the quality of education and promotes academic development in Chinese universities. Second, the input of some disciplines has greatly promoted economic and societal development and improved disciplinary structure in HE (Lin & Liu, 2010; Wang, 2012). Lin and Liu (2010) propose that importing certain well-established cutting-edge disciplines such as biotechnology and environmental protection from foreign universities is a sound way to cultivate urgently needed talents. Third, at the managerial level, the communication between domestic and foreign HEIs has accelerated the reform of Chinese HEIs. New thoughts and experience of managing institutions have enabled domestic universities to become directly involved in the field of international education and compete on a global scale, which in turn has stimulated and assisted the implementation of HE reform in China (Tan, 2009). Finally, at an individual level, cultural exchange is promoted between the East and the West as communication between students and lecturers from different cultural backgrounds enhances cross-cultural understanding and communication.

However, the contributions made by CFCRS have been hampered by several co-existing problems. First, the distribution of discipline of CFCRS programmes at the undergraduate level is imbalanced. According to statistics by Hou et al. (2014), the most

prominent cooperative disciplines are economics, business administration and electrical engineering and computing, while the number of remaining subjects appears to be much smaller (Figure 2.1). Similar results are seen in prior studies; for example, Tan (2006) found that 50 percent of all undergraduate joint programmes related to business and management and Yang (2008) discovered that more than 60 percent of programmes were relevant to business and management. This uneven distribution demonstrates that CFCRS excessively focuses on application-orientated disciplines. Disciplines that benefit economic development, such as management, economics and engineering, are highly valued by students and employers, thus most HEIs tend to prioritise them. The disciplinary structure, the market positioning, and the model of training talent are similar among HEIs (Lin & Liu, 2007b), with the consequence that the diversity of disciplines is inhibited and one institution is indistinguishable from another, since they all set up similar disciplines. As Hou et al. (2014, p.312) note, the “duplication of similar projects focusing on similar disciplines” may engender strong competition, even within the same district.

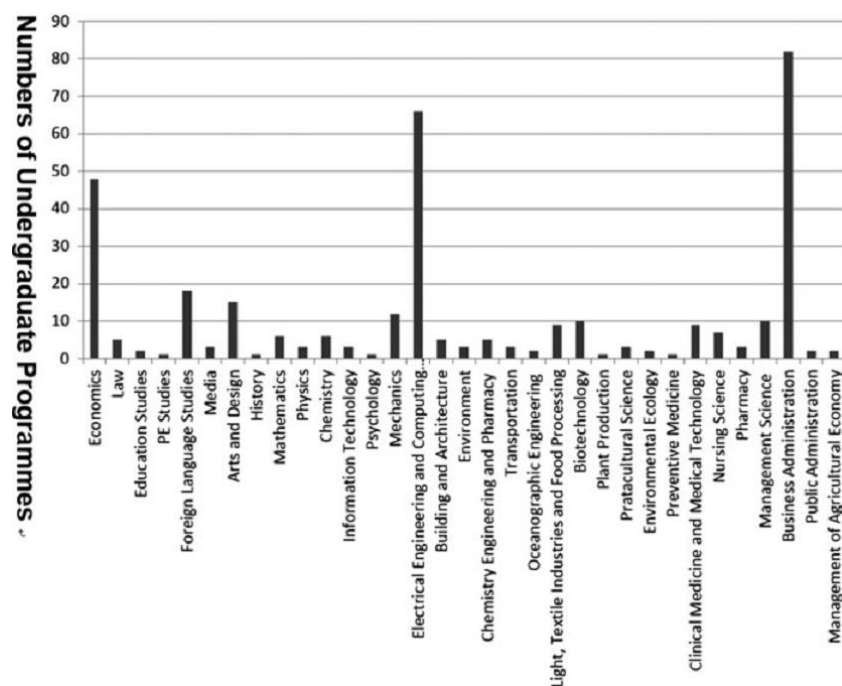


Figure 2.1 Distribution of undergraduate CFCRS programmes by subject

Source: Hou et al. (2014, p.304)

The second problem is the mismatch of academic levels between Chinese and foreign universities. Ideally some of the key Chinese universities that are supported by the government, both financially and politically, are expected to “cooperate with foreign educational institutions which are well recognised in terms of their academic level and education quality” (Hou et al., 2014, p.310). Indeed, there are some well-matched alliances; for example, the Centre for Chinese and American Studies in Nanjing University, which was jointly established by The Johns Hopkins University and Nanjing University. However, good matches are few and many universities set up CFCRS programmes primarily based on financial concerns, regardless of the academic performance of their foreign partners. Lin and Liu (2007b) point out that most world-class universities in for instance the West are less motivated to build branch campuses or establish cooperative programmes in China; meanwhile, academically less well recognised foreign universities are interested in the ‘Chinese market’ and set up cooperative relationship with Chinese HEIs. From a domestic perspective, a vast number of Chinese universities, regardless of their academic levels, are facing problems such as lack of funding, shortage of good teaching staff and insufficient quantities of good equipment as a result of the massification of Chinese HEIs. The excessive expansion in terms of scale has driven these universities to compete for potential students (Lin & Liu, 2007b) to charge high tuition fees. The international cooperative projects, which prioritise the importation of foreign educational resources are indeed attractive to the Chinese learners. As a result, CFCRS programmes are viewed as an important means to for universities to increase income, yet the matching of academic level is ignored.

The third issue is that the CFCRS has not been effectively monitored and the quality of education remains problematic. The quality of cooperation in international education has attracted the attention of academics across the world (Bannier, 2016; Chapman & Pyvis, 2012; Onsman, 2010). Although China implements undergraduate education quality assessment of on a regular basis with the aim of improving and managing the

quality of HE with a five-year evaluation cycle, the CFCRS has not been included until recent years, which implies that it was not supervised effectively. While the current annual inspection system is capable of identifying problems that occur in the operation of CFCRS, it can only inspect basic factors, such as whether a programme is legal or illegal, rather than evaluating quality of programmes. Yang (2014, p.156) describes the current situation in terms of quality and surveillance as follows:

While the central government approves or charters the establishment of joint education programmes in line with the existing legal frameworks and guidelines, a lack of consistent oversight after approval has left the responsibility for quality entirely in the hands of the involved teaching staff and programme coordinators.

Having described a general picture of CFCRS, I will narrow the discussion down to the international IET programme investigated for the remaining part of this chapter. This programme is the context for this study.

2.5 Overview of the investigated International Economics and Trade programme

2.5.1 Reasons for choosing the programme

The major reason for focusing this research exclusively on the international or CFCRS programme rather than a Chinese-Foreign cooperatively-run universities or affiliated colleges is that such a programme is an important strategy for many universities to achieve internationalisation (Huang, 2007), which is demonstrated by its prevalence in Chinese HEIs. There are many more CFCRS programmes than Chinese-Foreign cooperatively-run universities and affiliated colleges. According to the recent statistics (CFCRS supervisory work information platform, 2015), there are more than 800 CFCRS

programmes accredited by the MOE in Chinese universities as opposed to the 58 accredited in Chinese-Foreign cooperatively-run universities and affiliated colleges. In addition, a vast number of CFCRS programmes are neither listed on this website nor accredited by the MOE, but are still running (Ong & Chan, 2012). In total, two thousand CFCRS programmes are reportedly operating in approximately 600 HEIs in mainland China (Xinhuanet, 2015). Gide et al. (2010) contend that “cooperative programmes will continually play important roles in the internationalisation of China’s higher education” (p.5678).

The selection of the most appropriate programme on which to focus this study was based on two criteria, the first of which was that the learning took place exclusively in Chinese territory. This is because the study concerns the context of HE internationalisation in mainland China. Thus, the most appropriate option had to be a CFCRS programme wholly completed within Chinese territory, in other words, a ‘4+0’ programme. Second, there was a need for foreign educational resources to have been introduced, such as lecturers, textbooks and teaching and learning methods, in order to create a cross-cultural teaching and learning context. The CFCRS programmes meeting this criterion usually have a relative long history, and are able to better combine foreign resources with local situation to provide good quality education. Nevertheless, as Mok and Ong (2014, p.151) observe, although the central government has promulgated numerous rules and regulations since the 1990s as discussed above, “the effective enforcement of these rules as well as the related coordination between the central and local governments are different stories”. A significant number of programmes in some universities merely train their students English who are then sent to study abroad for one to three years. Such programmes were inappropriate for this study.

Finally, I elected to base the study on a university in Beijing which was operating an International Economic and Trade programme, established in cooperation with an Australian university in 2004; therefore, the programme had been running for more

than ten years. The courses for CFCRS programme students were delivered in the city centre, which was geographically close to my home. This made the investigation less costly and time-consuming so that I was able to control the process of fieldwork.

With regard to the two selection criteria, the chosen CFCRS programme met both fully. First, this university offered a '4+0' programme, which meant that all undergraduates were required to complete their study locally and without the need to study abroad. The students were exposed to a culturally different education with which they were unfamiliar. Second, the long history of this Sino-Australian IET programme was cooperatively run by two universities, one from each country, using mainly English teaching materials and employing both Chinese and Australian lecturers to create a cross-cultural environment for the learners.

I had no personal prior involvement with this case university. I neither graduated from it, nor did I have friends or colleagues there. Fortunately, I managed to get in touch with a friend working at this university as an administrator. This contact introduced me to some potential interviewees. The fieldwork was undertaken in May and June 2014, before the end of the second semester.

2.5.2 The discipline of International Economics and Trade

As stated above, the CFCRS programme selected for this study was established in cooperation with an Australian university in 2004 and subsequently accredited by the MOE. The academic programme in this Chinese HEI imports systematic educational resources from the cooperating Australian university, including the teaching plan, instruction outline, teaching materials including textbooks, pedagogical methods and academic staff.

Notably, the investigated programme encompasses only one academic discipline,

namely International Economics and Trade or IET. Each CFCRS programme cooperatively operated by both Chinese and foreign HEIs is normally based on one particular discipline, such as agriculture, engineering, law, psychology, computer science and artistic design. As stated in Chapter 1, this study sets out to explore IET undergraduates' conceptions of learning in general, rather than a specific concept or course. The discipline of IET in Chinese universities, as Wang and Zhu (2004) claim, is often synonymous with International Business or IB in many other countries.

Chandra and Newburry (1997) have presented a cognitive map of the international business field (Figure 2.2). This map "identifies the major contributing and supporting disciplines" (Laughton, 2005, p.51) of IB and the relationships between IB and these disciplines. It can be seen that IB or IET is essentially a comprehensive discipline which draws widely on knowledge from finance, accounting, economics, marketing and management. The discipline aims to promote both academic knowledge acquisition and professional skills improvement (Wang et al., 2013). Students need to increase their knowledge and understanding of their chosen academic domain, while meeting vocational requirements in order to fulfil the needs of their future jobs (Lucas & Milford, 2003; Macfarlane & Perkins, 1999).

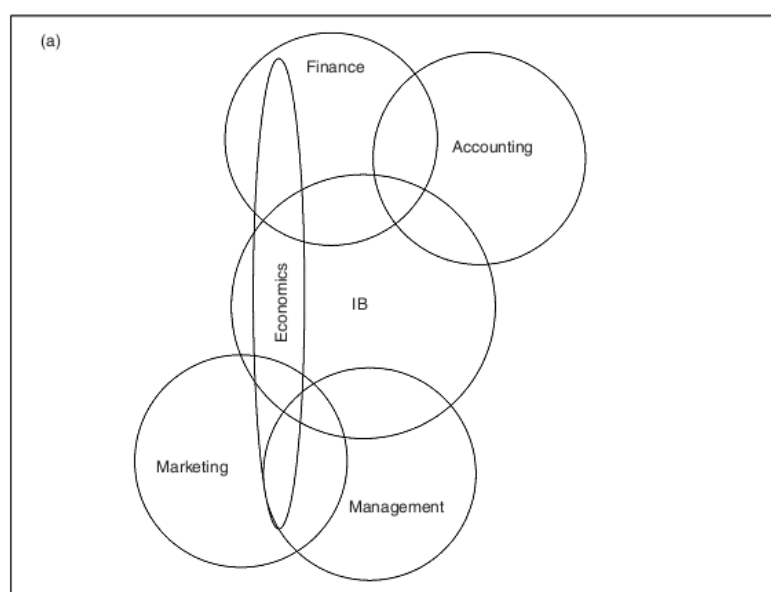


Figure 2.2 A cognitive map of the international business field

Source: Chandra & Newburry (1997, p.397)

The nature of disciplinary knowledge in IET can be described as both 'hard' and 'soft'. The 'hard' often have technical aspects and features with universal rules, which Corder (1990) identifies as subject-dependency. The 'soft' are usually associated with the environment, i.e. they show a more or less contextually-dependent nature known as environment-dependency (Corder, 1990). Corder (1990) further claims that the innate abilities of people may also play a key role in learning a subject which can be named person-dependency. Of the important constituent elements of IET, some courses such as accounting indicates strong subject-dependency, whilst marketing shows environment-dependency. Macfarlane (1997) has also pointed out that some subjects such as human resource management require person-dependent skills. As a matter of fact, an investigation of the course design in this Sino-Australian cooperative programme (see section 2.5.5) verifies the comprehensive nature of the discipline. Even though the investigated programme is based on a single discipline, the constituents or courses are broadly drawn from other business-related areas and incorporate both 'hard' and 'soft' aspects of knowledge. Such complexity makes the discipline of IB or IET worth exploring.

Another key reason for choosing IET lies in its prevalence in CFCRS (Hou et al., 2014). According to official statistics (www.jsj.edu.cn), the number of accredited CFCRS programmes in the business education area is large in all Chinese HEIs, covering a variety of disciplines, such as IET, business management, marketing, economics, accounting and finance. The most predominant and popular among these disciplines is IET, which accounts for 28% of the whole business education (Figure 2.3); thus, it is deemed to be worthy of investigation.

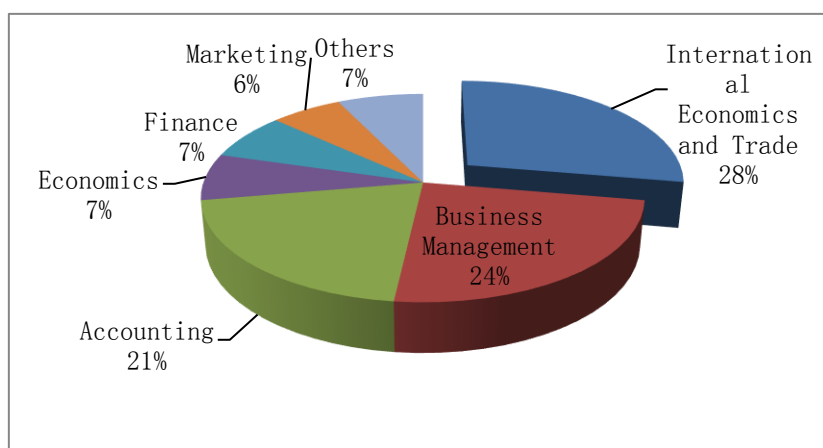


Figure 2.3 Distribution of CFCRS programmes by disciplines within business education

Source: www.jsj.edu.cn

2.5.3 Educational objectives

The setting of the objectives as shown in the student manual of the investigated university is ambitious. Graduates are required to obtain an international perspective and grasp the theories, policies, practices and basic skills which underpin IET. Graduates are also expected to be familiar with financial risk management techniques and the international economic and legal environment, as well as being capable of skilfully using English and modern information technology, enabling them to engage in international trade, international investment, financial risk management and international financial management. Ultimately, IET graduates could play a role in domestic enterprises, transnational corporations, financial institutions or governmental, social and international organisations. On completion of the IET programme, it is expected that graduates could be highly competitive, international and creative.

Specifically, graduates of the IET programme are expected to exhibit the following attributes:

- A solid theoretical basis in economics, and a strong ability to analyse and resolve problems.

- A good grasp of the theories and professional skills related to international economics and trade, finance and financial risk management.
- Exceptional English abilities, such as listening, speaking, reading, writing and translating.
- A solid mathematical basis, a grasp of the theories and methods of advanced mathematics, statistics and econometrics with the ability to apply them to international economics and trade and financial risk management. The ability to make strong empirical analyses and possess a medium research capacity.
- Be familiar with knowledge of the capital market and enterprise operation and management. More comprehensive economic and managerial capacities.
- A strong learning ability, adaptability, team-work ability, innovation capability and social responsibility.

2.5.4 Characteristics of students

Students wishing to attend this IET programme are allowed to apply for the CFCRS programme when they receive their College Entrance Examination (CEE) (*Gao Kao*) scores, after which the Australian university will set an examination and organise a face-to-face interview. Those who perform sufficiently well in the examination and interview will be offered a place on the programme.

It is worth noting that there is a clear division of state-planned and non-state-planned enrolment, which Mok and Ong (2014, p.138) describe as follows:

The former [state-planned students] refers to students who pass the National Entrance Examination to universities and could therefore secure a place in a certain university according to the national quota; the latter

[non-state-planned students] refers to those who are not offered a place through this mechanism—they may be fee-paying or simply mature students.

The local education authority in Beijing allows this university to enrol 80 undergraduate students per annum. These students will eventually be awarded two degrees if they meet the relevant requirements awarded by the investigated Chinese university and the partner Australian university separately. In contrast, those students who are outside the national undergraduate enrolment plan are deemed to be non-state-planned students. They often perform less well than the state-planned students in the CEE and obtain lower grades. The non-state-planned students also have to pay a higher tuition fee than their state-planned peers and will only receive a single degree from the Australian university. The reason for the different awards is explained by Zheng (2009, p.40):

state-planned students are guaranteed a Chinese university's degree if they meet all the academic conditions of the university, but non-state-planned students can never obtain a Chinese university degree but only a foreign university degree because they are not in the Chinese government's quota.

Obviously for the state-planned students this is a dual degree programme, whereas for the non-state-planned students this is a single degree programme.

2.5.5 Curriculum, pedagogy and assessment methods

With respect to curricula, state-planned and non-state-planned students share most courses, with only minor differences. Table 2.3 provides a detailed account of the compulsory and optional courses for both state-planned and non-state-planned IET students.

State-planned students	Non-state-planned students
<p><i>Compulsory courses:</i></p> <p>cultivation of ideological morality and the basic knowledge of law; conspectus of Chinese modern history; introduction of the basic principle of Marxism; Mao Zedong thought and introduction on the theoretical system of socialism with Chinese characteristic; state status and politics; military theory; college English; oral English; listening skill; calculus; linear algebra; probability and mathematical statistics; fundamental of computer application; database principles and applications; physical education; professional guidance and occupational planning; politics economics; microeconomics; macroeconomics; international trade; econometrics; public finance; finance; accounting; statistics; principle of management; general theory of civil and commercial law; international investments; international finance; introduction to WTO; international settlement; international commercial law; principles of marketing; environment for international business; professional development 1 (bilingual); statistics for business & marketing (bilingual); management & organisational</p>	<p><i>Compulsory courses:</i></p> <p>cultivation of ideological morality and the basic knowledge of law; Youth Psychology; Chinese traditional culture; college English; oral English; listening skill; calculus; probability and mathematical statistics; fundamental of computer application; physical education; politics economics; microeconomics; macroeconomics; international trade; econometrics; finance; accounting; statistics; principle of management; general theory of civil and commercial law; import and export practice; international finance; introduction to WTO; international settlement; international commercial law; principles of marketing; environment for international business; professional development 1 (bilingual); statistics for business & marketing (bilingual); management & organisational behaviour (bilingual); accounting for decision making (bilingual); personal financial planning (bilingual); theory of international economics (bilingual); risk management and insurance (bilingual), international marketing (bilingual); international economics analysis (bilingual); taxation law and practice (bilingual); risk</p>

<p>behaviour (bilingual); accounting for decision making (bilingual); personal financial planning (bilingual); theory of international economics (bilingual); risk management and insurance (bilingual), international marketing (bilingual); international economics analysis (bilingual); taxation law and practice (bilingual); risk management models (bilingual); investment and portfolio management (bilingual); planning for long term wealth creation (bilingual); international trade practice (bilingual); strategic international operations (bilingual); professional development 2 (bilingual); professional development (bilingual)</p>	<p>management models (bilingual); investment and portfolio management (bilingual); planning for long term wealth creation (bilingual); international trade practice (bilingual); strategic international operations (bilingual); professional development 2 (bilingual); professional development (bilingual);</p>
<p><i>Optional courses:</i></p> <p>game theory and information economics; industrial economics; environmental economics; introduction to world economy; international economic cooperation; international trade in services; international taxation; introduction to China's foreign trade; international business negotiation; logistics and supply chain management; import and export practice; introduction to electronic business; maritime law; corporate finance; financial management; practice of business bank; finance market; investment bank;</p>	<p><i>Optional courses:</i></p> <p>International investment; the theories and practice of securities investment; introduction of the basic principle of Marxism; linear algebra; international taxation; international business negotiation; introduction to electronic business; corporate finance; financial management; practice of business bank; finance market; transnational corporation management; operation research; human resource management; institutional economics; project management; asset evaluation; introduction to international</p>

options and futures; transnational corporation	politics; intellectual property law; management
management ; customer relationship	accounting; tax planning; personal finance
management; operation research ; human	
resource management ; institutional	
economics ; project management; asset	
evaluation; introduction to international	
politics; intellectual property law; management	
accounting; tax planning; personal finance	

Table 2.3 Compulsory and optional courses for the state-planned and non-state-planned students

Note: shared courses are shown in bold

Source: the student handbook

As indicated in Table 2.3, the IET programme encompasses a wide range of business-related courses. The wide coverage of the curricula corresponds well with the cognitive map (Figure 2.2) of international business compiled by Chandra and Newburry (1997). While a small fraction of the curriculum is taught by Chinese lecturers only, many ‘cooperative courses’ are delivered bilingually and cooperatively by both Chinese and Australian lecturers. A few language courses are provided solely by foreign lecturers. Students begin to be educated by Australian lecturers as soon as they enter the programme and have to improve their English and learn the Australian academic norms during the first two years of study. All students in this Sino-Australian programme are required to earn approximately 200 credits during their four-year study, which involves a large volume of work; they may sometimes have to take courses and study from 8am to 9pm.

The need to acquire English language skills is high in both groups. In the second year of

study, all undergraduates must demonstrate their language proficiency by successfully completing the English test organised by the partner Australian university; alternatively they could attend the International English Language Testing System (IELTS) test in which they would need to obtain a score of no less than 6.0. Failure to meet these requirements could result in restriction from continuing their studies for the following two years.

In line with central government policy, the CFCRS programme mainly provides an education service for Chinese citizens; indeed, all learners enrolled on the international IET programme are Chinese, with no international students. However, the lecturers are from both China and Australia and many Chinese lecturers were also found, during the investigation, to have experience of studying abroad; thus, the teaching staff is highly internationalised. While most Chinese lecturers focus on more traditional ways of teaching by, for example, delivering knowledge, Australian lecturers emphasise diverse activities such as the facilitation of workshops, group discussions, tutorials, presentations and role-playing exercises so as to make the curricula interesting and appealing. Domestic lecturers are seen to stress knowledge and skill instruction, whereas foreign teaching styles value interaction in classrooms and positive relationships with students. Lecturers also test their students in different ways. The majority of Chinese lecturers use the traditional method, i.e. a final closed-book examination held at the end of the semester. However, the Australians utilise several progressive assessment strategies such as class presentations and regular assignments throughout the entire programme rather than adopt a single summative examination.

2.6 Chapter summary

Chapter 2 is essentially a contextual chapter that sets the stage for this research and provides background information related to the CFCRS programme. The meaning and rationales of HE internationalisation are examined along with the theories and findings

that have emanated from western scholars regarding their own environment. However, since this study is based on a CFCRS programme cooperatively run by an Australian university and a Chinese university in Beijing, it is essential to analyse the local environment. The detailed information pertinent to CFCRS, such as its practical strategies and policy developments, and its benefits and challenges is provided in this chapter. The international IET programme investigated in this study is the focus of the last section of this chapter. An overview of the investigated programme is provided from diverse aspects, such as its overall educational aims, student characteristics, curricula, pedagogy and assessment.

Literature related to the central notion of the research study, namely conceptions of learning, will be reviewed in the next chapter. Although a great number of empirical and theoretical studies have addressed various aspects of learning conception in various contexts, a systematic review of the existing literature indicates that there are still some gaps that can be filled by this study.

Chapter 3. Review of the literature on conceptions of learning

3.1 Introduction

Conceptions of learning, which are central to this study, have attracted numerous researchers in past decades and fruitful achievements have been made. This chapter presents a systematic review of the literature in this field which serves two purposes. First, the review contributes to the development of the conceptual basis of this research. Second, the literature review serves to identify gaps in the existing body of knowledge that this study goes on to address.

This chapter begins by examining definitions of conceptions of learning, a process which enables analysis of the quantitative and qualitative dichotomy often associated with this field. The first section then moves to the potential inter-relationship between various conceptions, more specifically, the hierarchical structure proposed by researchers over the past two decades (Åkerlind, 2008; Cope & Prosser, 2005; Marton, 1994; Marton & Booth, 1997).

Although published empirical studies of conceptions of learning completed in the past decades are substantial, it remains to be clarified as to why this field attracted so many researchers during this period. Therefore, the second section in this chapter explores the significance of conceptions of learning by examining the close relationship between learning conceptions and learning approaches.

Conceptions of learning are inseparable from the environment they situate, as context may have an impact on ways of experiencing and understanding learning (Säljö, 1987). The third section of this chapter thus deals with conceptions of learning in various contexts. Many researchers (Byrne & Flood, 2004; Eklund-Myrskog, 1998) consider

comparison to be an effective method to explore variations of conceptions of learning in diverse educational contexts. Given the abundance of studies built in the western context, which have yielded similar results, numerous scholars argue that a non-western perspective should be considered as an alternative means to produce new insights into the ways in which learning is perceived (Abhayawansa & Fonseca, 2010; Dahlin & Regmi, 1997). Since empirical work conducted in Hong Kong and mainland China provide some insights, the final section in this chapter is devoted to an intensive review of a number of empirical studies concerning Chinese students. While most of these studies strongly emphasise specific aspects of learning, for instance, the memorisation-understanding nexus, others aim to uncover the experience of learning as a whole. Analysis of this area of research provides the basis for development of a better understanding of the way in which Chinese undergraduate students conceptualise learning.

While conceptions of learning is a key theme for phenomenography, it may also be reflected in multiple theoretical frameworks (Varnava-Marouchou, 2007) and can be researched via different approaches. This chapter, therefore, also briefly reviews alternative perspective and approaches to studying conceptions of learning.

This chapter refers to some aspects of phenomenography, a research approach created to uncover people's conceptions of certain phenomena. While the current chapter reviews research into conceptions of learning, Chapter 4 explores phenomenography in greater depth.

3.2 Conceptions of learning

3.2.1 Defining conceptions of learning

A conception “is used to refer to people's ways of experiencing or making sense of their

world” (Sandberg, 2000, p.12) and it “reflects a simultaneous awareness of particular aspects of the phenomenon” (Marton & Booth, 1997, p.107). Conceptions, thus, represent “particular way[s] of viewing, thinking about and interpreting an aspect of the world” (Ballantyne et al., 1994, p.27) and focus on the relationship between the experiencer (people) and the experienced (phenomena) (Johansson et al., 1985). A conception is the fundamental unit of description in phenomenographic studies (Marton & Pong, 2005). From a phenomenographic perspective, a conception is not a cognitive or mental structure, but a way of being aware of something (Marton, 1994).

The phrase ‘conceptions of learning’ is commonly used to describe the ways in which students perceive what learning means to them (Ellis et al., 2008) and it is similar to “personal epistemologies: beliefs about the nature of knowledge and of coming to know” (Ellis et al., 2008, p.268). Byrne and Flood (2004, p.26) contend that “[a] conception of learning captures the way in which a person views learning, that is, what learning means to him/her”. Marton and Booth (1997) claim that conceptions of learning are reflected in how learners see learning, how they go about learning, and what they think it is.

3.2.2 Quantitative and qualitative conceptions of learning

Tynjälä (1997, p.278) argues that research on conceptions of learning have two distinctive routes:

[...] cognitively oriented studies of mental models on the one hand and more experientially oriented phenomenographic studies on the other. While cognitive studies seek to uncover mental representations and changes in them, phenomenographic research aims to capture the different ways in which people understand and describe phenomena.

Conceptions of learning are a significant phenomenographic research theme (Boulton-Lewis et al., 2004; Pong, 1999). Purdie and Hattie (2002, p.19) state that empirical researchers “have generally used a phenomenographic approach in which the emphasis is on trying to understand how people view the world around them”. Similarly, Paakkari et al. (2011) observe that most empirical studies on conceptions of learning are conducted via a phenomenographic approach. Most recently, Täks et al. (2016, p.56) claim that “[c]onceptions of learning have been examined mainly using a phenomenographic research approach, which investigates people’s conceptions of different phenomena”, and similar statements can also be found in Töytäri et al.’s (2016) research. In phenomenographic studies, conceptions are often obtained through a range of empirical techniques, such as interviews, open-ended questions and reflective writings (Chan, 2011).

Early work by Säljö (1979b) identified five categories of conceptions of learning, namely, learning as a quantitative increase of knowledge, learning as memorising and reproduction, learning as the acquisition of practical knowledge and application, learning as the abstraction of meaning, and learning as an interpretive procedure with the aim of understanding reality. Independent of this work, Giorgi (1986) found similar conceptions of learning. It is now generally acknowledged that Säljö’s (1979b) early work is the start of research on conceptions of learning (Tsai, 2009) which also provides basic conceptions for subsequent studies. Decades later, Marton et al. (1993) found comparable results, namely, learning as ‘increasing one’s knowledge’, ‘memorising’, ‘applying’, ‘understanding’ and ‘seeing in a different way’, but added a sixth dimension, learning as ‘changing as a person’. However, Marton et al. (1993) were not first to identify the new conception of learning as changing as a person, because van Rossum and Taylor (1987) had found a similar learning conception before Marton and his colleagues. While interviewing a sample of arts students, van Rossum and Taylor (1987, p.19) labelled the most advanced learning conception as “a conscious process, fuelled by personal interests and directed at obtaining harmony and happiness or changing society”, which is similar to ‘changing as a person’ identified by Marton et al. (1993).

Several years later, Beaty et al. (1997) presented a clear explanation of conceptions of learning based on a series of longitudinal phenomenographic interviews with learners at the Open University in the UK (see Table 3.1).

Conception A. Increasing one's knowledge

There is a strong quantitative and taken-for-granted flavour to this way of experiencing learning. Its indicators are the collection, consumption and storage of ready-made pieces of knowledge (information), together with a quantitative, discrete character of knowledge (information).

Conception B. Memorising and reproducing

Learning is typically seen in quantitative terms, as a (rote) reproduction of something memorised and the orientation to a test or performance. The distinction between this way of experiencing learning and the previous one primarily relates to the formal educational situations to which it refers, where a requirement to reproduce something memorised is anticipated.

Conception C. Application

The emphasis is on the ability to apply some knowledge or produce when the need arises. What is to be applied is taken in and stored for later use, as required. While there are similarities with A and B above, this view of learning can be distinguished from A through the emphasis on application. It differs from B in the sense that the knowledge or procedure is to be used, not merely reproduced, and it is not confined to tests or performance in formal educational situations.

Conception D. Understanding

In A-C above, what is acquired through learning is seen as ready-made or given, to be taken in and stored. The views of learning described in D-F can be distinguished from those described above in the sense that what is learned is no longer taken for

granted or given. Rather, the learner has a critical role in the making of meaning. In D the emphasis is on grasping the meaning of learning material in the study situation. Visual metaphors, such as looking into or having a view of the learning material, are common.

Conception E. Seeing in a different way

As for D above, this view of learning involves coming to grasp or see something in a certain way. In E, however, the emphasis is on change to a new way of seeing. Furthermore, situations for learning are no longer limited to study settings and course material. Instead, the student typically comes to see something in the world outside the university in a new way, often from material learned within the university context.

Conception F. Changing as a person

In this case learning is afforded a more personal character than for those described above. Seeing something in the world in a new way enables change as a person. Learning is an integral and ongoing part of the life of the person concerned.

Table 3.1 Descriptive explanation of different conceptions of learning

Source: Beaty et al. (1997, pp.150-151)

Marton et al. (1993, pp.297-298) further distinguished between these six conceptions of learning by drawing on the absence or existence of meaning to make the following argument:

The most important distinction is between conceptions A, B, C [learning as increasing ones' knowledge, memorising and reproducing, applying] on the one hand and D, E, F [learning as understanding, seeing something in a different way, changing as a person] on the other. This distinction relates to the role of meaning in learning. While learning is basically about constitution of meaning in the second group of conceptions, the notion of meaning is absent from the first group of conceptions.

Similarly, Biggs (1994) identified two perspectives of learning, namely 'quantitative' and 'qualitative'. Burnett et al. (2003, p.56) claim that the quantitative view on learning "is concerned with acquisition and accumulation of content" and, conversely, the qualitative view "suggests that learning is about understanding and meaning-making through relating or connecting new material with prior knowledge".

Thus, there appears to be a dichotomy within these qualitatively different ways of experiencing the phenomenon of learning. In general, phenomenographic research has identified two opposing conceptions of learning. The quantitative conception "views learning as a process of accumulating information in order to reproduce or apply it" (Duarte, 2007, p.781) and perceives learning as "a passive accumulation of external fragmentary information" (Chiou et al., 2012, p.169). These perspectives emphasise what is learned and "dwell upon the accumulation, reproduction and (sometimes) use of pieces of knowledge" (Ellis et al., 2008, p.269). Those who adhere to such conceptions "fail to personalise learning; rather they regard it as functional and external to themselves" (Byrne & Flood, 2004, p.28). Learning is regarded as simply a means to increase knowledge and memorisation to the extent that deep understanding of the meaning of what has been learned is not achieved. Knowledge is perceived as an external entity that needs to be stored. The concern of those who subscribe to a quantitative perspective is the gaining of factual information and their endeavour is acquisition and storage. What may attract their attention are scattered pieces of information (Marton, 1988). Students with quantitative conception tend to rely on teacher-centred learning (Täks et al., 2016). Säljö (1982, p.184) describes these learners as follows:

[H]e or she appears to learn them [pieces of knowledge] as if they were 'facts.' Thus, they do appear in the recalls, but not as a result of an active search for what the writer intended to make known or of an attempt to reconstruct the chain of reasoning which is developed. Rather, they seem

to appear as a result merely of remembering the actual statement made by the author.

In contrast, the qualitative conception “implies that learning has to do with comprehension and interpretation of meaning” (Duarte, 2007, p.782). Learning is perceived as “an active transformation of external information into meaningful, understandable, and applicable knowledge” (Chiou et al., 2012, p.169) and this conception of learning presents “a more relativistic, complex, and systematic view of knowledge and how it is achieved and used” (Ramsden, 2003, p.28). Conceptions as such “include ideas about new learning causing the restructuring of existing knowledge, about conceptual development and about change as a person” (Ellis et al., 2008, p.269). Thus, the process of learning is more important than what is learned. Students with qualitative conception tend to emphasise more constructive and student-centred learning (Täks et al., 2016). The qualitative conception seems to be more valuable, since learners may view learning as individualised and become more reflective during the process (Byrne & Flood, 2004). McLean (2001) argues that this could even influence the personal lives of students and their future career development.

Marton and Booth (1997, p.38) also embrace these two conceptions in relation to learning tasks:

The former [quantitative conceptions] think about learning as if it were limited totally to the tasks of learning imposed by a study situation, whereas the latter [qualitative conceptions] look beyond the tasks in themselves to the world that the tasks open for them. [...] the former focusing on the tasks themselves and the latter going beyond the tasks to what the tasks signify.

It is interesting to note that within this duality researchers may use different labels to describe learning conceptions. In the first group which emphasises what has been

learned, there is surface understanding (Purdie & Hattie, 2002), which has variously been described as 'reproductive' (McLean, 2001), 'quantitative' (Chalmers & Fuller, 1996; Duarte, 2007), or 'fragmented' (Ellis et al., 2008). The second cohort of researchers depict deep understanding (Purdie & Hattie, 2002) which is regarded as 'transformative' (McLean, 2001), 'qualitative' (Chalmers & Fuller, 1996; Duarte, 2007), or 'cohesive' (Ellis et al., 2008), all of which stress how something has been learned.

3.2.3 The hierarchical relationship between conceptions

Having identified the several conceptions of learning, the next question is whether they are related and if so, in what way. Basically this question concerns the nature of relationship between conceptions or ways of experiencing or understanding in phenomenography. Marton and Booth (1997) claim that they are related in that conceptions are all orientated toward the same phenomenon. Furthermore the internal relationship between qualitatively various conceptions is usually hierarchical (Cope & Prosser, 2005; Marton, 1994). Pang and Ki (2016, p.325) contend that:

Phenomenographic categories (the ways of understanding or experiencing identified) for the same phenomenon are not just random individual subjective imaginings. They are logically related on a collective level. Some are seen as more complex or inclusive, and others as more simplistic and monolithic, and they can be organised hierarchically into an outcome space according to similarities and differences in aspects of the phenomenon that are discerned and simultaneously attended to.

Marton and Booth (1997, p.107) argue that:

More advanced ways of experiencing something are [...] more complex and more inclusive (or more specific) than less advanced ways of

experiencing the same thing, “more inclusive” and “more specific” both implying more simultaneously experienced aspects constituting constraints on how the phenomenon is seen.

Åkerlind (2008, p.637) points out that “[f]rom a phenomenographic perspective, less sophisticated conceptions are regarded not so much as wrong, but as incomplete, lacking awareness of key aspects of the phenomenon that are focal in more sophisticated conceptions”.

Therefore, higher-level conceptions of learning are often based on, and include lower-level conceptions. This is a one-way inclusive relationship, i.e. more sophisticated conceptions involve the elements that less sophisticated conceptions do not have (Prosser & Trigwell, 1999). As Åkerlind (2003, p.378) claims, “the hierarchy of inclusiveness that phenomenographic analysis searches for is one of increasing breadth of awareness of different aspects of the phenomenon being investigated”. The final results of phenomenographic studies present “a nested hierarchy of expanding awareness of the different features” (Åkerlind et al., 2014, p.232).

This hierarchical relationship has its roots in the so-called structure of awareness (Marton & Booth, 1997) which is articulated in the next chapter. Cope and Prosser (2005, pp.350-351) explain that:

In comparing different levels of understanding in a hierarchy, the deeper levels involve an internal horizon containing more aspects of the phenomenon and/or an individual aspect of the phenomenon conceptualised in a deeper way and/or more and better defined relationships between the aspects. Being aware of more aspects of a phenomenon means that aspects of the phenomenon which may have been part of the external horizon have become part of the internal horizon. In this circumstance the phenomenon is being understood as a broader

entity in its context.

The basic principle for developing a hierarchy is inclusiveness rather than arbitrary and groundless value judgement. The point is often misunderstood, as explained by Åkerlind et al. (2005, p.95):

The hierarchy is not one based on value judgements of better and worse ways of understanding, but on evidence of some categories being inclusive of others. Thus, the structural relationships searched for in a phenomenographic outcome space are ones of hierarchical inclusiveness.

Åkerlind (2008) further contends that people may become more critical and suspicious rather than taken-for-granted about certain phenomena with the increased breadth of awareness.

However, it is likely that so-called inclusiveness and hierarchy will conceal and oversimplify complex reality. Patrick (2000) suggests that it may be prejudicial to assume the existence of a hierarchy, regardless of the data collected. Kember (1997, p.263) refers to several studies such as those by Martin and Ramsden (1992), Samuelowicz and Bain (1992), and McKay (1995) to argue that the relationship between conceptions could be “regarded as an ordered set” rather than a hierarchy and add that “[i]t seems unlikely that all scenarios are best understood by the reader if portrayed as a list of categories in hierarchical order”. Although the research by Kember (1997) was based on conceptions of teaching, the hierarchical nature of the inter-category relationship could also be explored in relation to conceptions of learning.

In addition, the boundary between different categories may not be as clear as expected; for example, between conceptions of memorisation and understanding which are discussed in the following sections. Several influential researchers in the West, such as Säljö (1979b) and Marton et al. (1993), propose that understanding is located in a

higher position than memorisation; however, when the argument is expanded to include the East, particularly China, the border between the two, arguably, becomes extremely blurred (Marton et al., 2005). Furthermore, it cannot be asserted that understanding is more sophisticated than memorisation or vice versa (Zhao & Thomas, 2016). In a sense, their hierarchical relationship should not be regarded as being excessively rigid; “forks and branches” (Åkerlind et al., 2005, p.95) are also accepted.

3.3 Significance of conceptions of learning

The significance of the conceptions of learning stems from its intimate relationship with learning approaches. Marton and Booth (1997) discussed the ways in which students approach their learning in order to understand why some are better learners than others. Their findings showed that the students’ conception of learning was an important factor, which could have a significant impact on approaches to learning (Byrne & Flood, 2004). Peterson et al. (2010, p.168) claimed that the “reason why many researchers have persisted in trying to identify key conceptions of learning is the underlying belief that conceptions of learning have the potential to explain different learning behaviour” or learning approaches.

The approach to learning is a qualitative description, which “describes a relation between the student and the learning he or she is doing” (Ramsden, 1992, p.44). The aim of investigating different approaches to learning is not to reveal student learning habits, but rather to identify the factors that hamper the learning process and determine solutions to moderate or eradicate them (Sharma, 1997).

Traditionally, different ways of perceiving learning have supported the establishment of two fundamental approaches, namely, surface and deep, identified by Marton and Säljö (1976) in an early study. The division between these two approaches is still prevalent.

In the case of surface-level processing the student directs his attention towards learning the text itself (the sign), i.e., he has a 'reproductive' conception of learning which means that he is more or less forced to keep to a rote-learning strategy. In the case of deep-level processing, on the other hand, the student is directed towards the intentional content of the learning material (what is signified), i.e., he is directed towards comprehending what the author wants to say about, for instance, a certain scientific problem or principle. (Marton & Säljö, 1976, pp.7-8)

Deep approaches to learning aim to comprehend the meaning of the materials learned, while surface approaches aim to reproduce information for the purpose of external demands, such as examinations (Edmunds & Richardson, 2009). Approaches held by individual students may also vary based on their “perception of the content, context, and demands of different learning tasks” (Edmunds & Richardson, 2009, p.296). While learners who adopt a deep approach play an active role and demonstrate intrinsic motivation in learning, those who adopt a surface approach often react to learning tasks passively and view them as being externally imposed (Biggs & Tang, 2007).

The surface and deep approaches may also have an impact on students' emotion in learning. Biggs and Tang (2011, p.25) contend that students who adopt surface approaches often view learning as “a drag, a task to be got out of the way” and they have negative feelings such as “anxiety, cynicism, boredom”. Nonetheless, students who use deep approaches often have some positive feelings such as “interest, a sense of importance, challenge, exhilaration” and view learning as an enjoyment (Biggs & Tang, 2011, p.25).

Ramsden (1979) contends that a strategic approach should also be viewed as equally significant. Nonetheless Volet and Chalmers (1992) deem that the strategic approach to learning demonstrates an ability to switch between deep and surface approaches and it is not an independent approach.

It is noted that learning approaches may vary, depending on numerous factors, such as discipline, student characteristics, features of learning tasks and workload. In other words, students may learn very differently according to subject areas and academic tasks (Ramsden, 2003). Broadly speaking, learning has a contextual nature. It should not be viewed as an isolated activity, but considered in relation to numerous aspects of the environment in which it takes place, as well as teaching and assessment methods, and curricula (Abhayawansa & Fonseca, 2010; Mladenovic, 2000).

While the deep/surface division has been an enduring concern there appears to be a consensus that a deep approach is more productive than a surface approach. Nonetheless, Webb (1997, p.206) questions this by posing reflective questions such as, "Is all 'surface' learning bad?" and "What if surface learning approaches produce high academic achievement?". Furthermore, Haggis (2003) criticises the consensus that the deep approach should be prevalent within university campuses, and contends that although deep learning approaches represent certain elite goals and the values of academics, they can hardly be related to learners in a mass HE context.

Conceptions of learning could affect approaches to learning. The close connection between the two has been identified by numerous researchers (Chiou et al., 2012; Edmunds & Richardson, 2009; Ferla et al., 2008; Lonka & Lindblom-Ylänne, 1996; Marton & Booth, 1997; Marton & Säljö, 2005; Minasian-Batmanian et al., 2006). Conceptions of learning and approaches to learning are so intimately related that "it is possible to predict the quality of the learning outcomes directly from students' conceptions of learning" (Gibbs, 1995, p.23). Learners who only or largely possess some basic, naive and less advanced conceptions (e.g. learning as knowledge increasing, memorising and application) may possibly adopt a surface approach to learning, whereas those who have relatively more sophisticated and advanced learning conceptions (e.g. learning as understanding, interpreting reality and personal change) will normally adopt a deep approach.

Van Rossum and Schenk (1984) asked university students to read a text before discussing two issues with them, namely, how they approached this reading task and how they approached their daily learning in general. This empirical work enabled them to identify different categories of conceptions similar to those proposed by Säljö (1979b). Interviewees with 'reproductive' conceptions were more inclined to adopt surface approaches, while those with 'transformative' conceptions tended to adopt deep approaches; therefore, a relationship was established between conceptions of and approaches to learning. Similarly, Marton and Säljö (1997) also demonstrate that students with more sophisticated conceptions of learning are more likely to adopt deep approaches to learning than students who perceive learning in a superficial and less advanced way. In a non-western context, Yang and Tsai's (2010) investigation demonstrates that college students in Taiwan also see the connection between conceptions of and approaches to learning.

However, the strong relationship between learning conceptions and approaches has not gone unchallenged. Based on quantitative results, Fuller (1999, p.1) argues that there is little proof to support this generally-believed relationship; rather it is the learning context that "exert[s] a stronger influence on learning than the beliefs about learning". In addition, it is not uncommon to find that the way of understanding learning and the way of approaching learning tasks are incompatible. For instance, a study by Boulton-Lewis et al. (2004) indicates that learners' conceptions are more advanced than the strategies they adopt. They discovered that high-level and more sophisticated conceptions of learning did not always lead to deep approaches to learning. Therefore, the seemingly natural and close connection between learning conceptions and approaches is questionable.

Conceptions to learning are further closely linked to the quality of learning outcomes (Biggs & Tang, 2007). Asikainen et al. (2013, p.36) contend that "understanding students' conceptions of learning is important in understanding how to enhance the quality of

student learning”. Therefore, exploring the conceptions of learning is one of the key steps toward improving the quality of learning as a whole. Ellis et al. (2008, p.268) account for learning outcomes by arguing that research “[f]rom a phenomenographic perspective has shown that students’ conceptions of learning and their approaches to learning are related to each other and to the quality of learning outcomes”. A number of early studies produced abundant evidence of this claim (Prosser & Millar, 1989; Trigwell & Prosser, 1991). Ellis et al. (2008, p.73) further argue that “a learning outcome of relatively high quality must be especially associated with deep-level approach and a constructive learning conception”.

In conclusion, the literature illustrates that conceptions of learning are a vital factor that can influence student learning approaches and the quality of learning outcomes as a whole; however, it is worth noting that most of these studies were conducted more than ten years ago. As observed by Asikainen et al. (2013), recent empirical work in this area is rare, with much of the well-known and most widely cited studies undertaken before the 21st century. The pioneering work by Säljö (1979b), in which five categories of learning conceptions were presented, was completed in early 1979, and Marton et al. (1993) supplemented these findings by adding a sixth conception in 1993. In the second decade of the 21st century, when everyday lives and HE are subject to many changes, it is time to conduct new in-depth empirical work to determine if prior conceptions of learning remain applicable to contemporary university students (Asikainen et al., 2013).

3.4 Conceptions of learning in different contexts

Studies conducted in past decades identified apparently analogous learning conceptions, which might have unintentionally implied their generalisability across different learning contexts including learning in HE (Pillay & Boulton-Lewis, 2000). Findings related to conceptions of learning over time appear to be fairly consistent, as

Virtanen and Lindblom-Ylänne (2010) contend that phenomenographic studies yield quite similar learning conceptions. This homogenisation trend seems to become more evident given the growing number of studies on conceptions of learning and may demonstrate the basic theoretical assumption of phenomenography, namely that there is a limited or finite number of qualitatively different ways to experience a particular phenomenon (Marton, 1994).

Nonetheless learning conceptions “cannot be taken to imply a universality of meaning with reference to learning” (Purdie & Hattie, 2002, p.18), since “the same individual may experience the same phenomenon differently under different circumstances” (Åkerlind, 2005a, p.7). According to Säljö (1987, p.106), learning is to “act within man-made institutions and to adapt to the particular definitions of learning that are valid in the educational environment in which one finds oneself”. It is inappropriate to separate learning activities from their educational environment or context, which is subjected to profound influence by historical, social and cultural factors. Hence, it could be argued that “different educational contexts define learning according to different social and culturally established conventions” (Byrne & Flood, 2004, p.29). The potential “variations within the conceptions which are context-dependent may still occur” (Yang & Tsai, 2010, p.73) and “conceptions may take various forms within different cultural or educational contexts” (Yang & Tsai, 2010, p.73). Therefore, an examination of learning conceptions in distinctive contexts could be valuable.

Context is a broad notion that covers numerous factors, for instance, different disciplines, programmes, educational levels, nations, and cultural backgrounds. The following sections examine conceptions of learning in different contexts. Section 3.4.1 concerns the various educational contexts, but with a focus on the western culture. Section 3.4.2 moves to a non-western perspective to explore new insights into learning conceptions. Section 3.4.3 intensively reviews empirical studies on Chinese students learning.

3.4.1 Different educational contexts

Various researchers consider comparison to be a sound method by which to examine the contextually dependent nature of learning conceptions in diverse educational contexts. For example, Eklund-Myrskog (1997, p.180) found that “the learning context does influence which aspects of the experience are accentuated and which are left in the background”, and her subsequent empirical work (Eklund-Myrskog, 1998) confirmed that learning conceptions could vary according to different academic subjects. Eklund-Myrskog selected two student cohorts, nurses and car mechanics, in order to explore understandings of learning in these two distinct programmes. According to the findings, student nurses viewed learning as remembering, understanding and applying new perspectives and forming a conception of one’s own, whereas car mechanics students perceived learning as remembering, applying, understanding and forming a conception of one’s own. Since the differences between the students in the two programmes were significant, Eklund-Myrskog concluded that the conceptions of learning were contextually dependent. Since, according to this research, learning conceptions are experience-dependent, it is likely that student experience of various academic domains may lead to distinctive conceptions of learning; in other words, learning conceptions are domain-specific, as borne out by a number of studies which verify that conceptions of learning are discipline-dependent (Marshall et al., 1999; Sadi & Lee, 2015).

A comparison can also be made between students at distinct educational levels, even within the same academic discipline. Byrne and Flood (2004) analysed the learning conceptions of accounting undergraduates and postgraduates in Ireland. The findings, which were almost identical to those of Marton et al. (1993), revealed that the majority of undergraduates had a very superficial understanding of learning; many of those who were expected to have higher-level or more advanced conceptions still possessed low-level or less sophisticated learning conceptions.

Tynjälä (1997) used a quasi-experimental design to compare student learning conceptions in two different environments, namely, traditional and constructive. The traditional learning environment cohort experienced individual reading, attending lectures and sitting examinations while the constructive learning environment cohort experienced team work, collective discussion of topics and essay writing instead of examinations. Both student cohorts were assigned an essay entitled 'My conceptions of learning' in order to explore their learning conceptions at both the beginning and the end of one term. The findings revealed that in both cohorts conceptions of learning changed in a similar way, and that students in the constructive learning group focused on critical thinking more than those in the traditional learning group. These results supported the argument that educational environments may have an impact on students' conceptions of learning.

Another important educational context is culture which can have a profound impact on learning conceptions given that different countries often have their own distinctive historical, cultural and social traditions. In a comparative study, Dahlgren et al. (2006) interviewed university students and lecturers in Linköping, Sweden, and Gdansk, Poland, to determine their respective definitions of learning. The aim of this project was to identify the impact of cultural differences. The team of investigators found that the conceptions of learning elicited from the Swedish sample which experienced learning as change, completion, and contextualisation, were different from those derived from the Polish sample which understood learning as an instrument, change, acquisition of knowledge, and a natural (biological) disposition.

It is also possible that learners from culturally, historically and socially different backgrounds share similar learning conceptions (Pillay & Boulton-Lewis, 2000). Purdie et al. (1996) found shared conceptions of learning among Japanese and Australian students where learning was understood as increasing knowledge, memorising and reproducing information, using information as a means to an end, understanding, seeing something in a different way, and personal fulfilment.

3.4.2 Non-western perspectives

Cross-cultural studies, especially those that adopt non-western perspectives, offer new insights into conceptions of learning. For instance, Asian learners are able to reconcile memorisation with understanding because they perceive these entities to be intertwined rather than contradictory (Byrne & Flood, 2004). This is in sharp contrast to the majority of western students, who perceive memorisation and understanding to have an opposing relationship (Byrne & Flood, 2004). According to Purdie and Hattie (2002, p.18):

Participants in studies conducted in Western educational contexts have generally equated rote learning with memorisation, and these processes have been clearly distinguished from the process of understanding. Memorisation and understanding are viewed as separate entities that occur at different points in time [... memorisation] is frowned upon as being an indicator of shallowness in learning.

Researchers in an early study conducted in a Nepalese university arrived at a similar conclusion (Dahlin & Regmi, 1997) that memorising and understanding were interlinked. Furthermore, 'changing as a person' is acknowledged to be a high-level qualitative conception in Western cultures, yet Watkins and Regmi (1992) found that Nepalese cultural and religious beliefs may result in the emergence of the conception of learning for character development at a much lower cognitive level than in the West. The results of an investigation into a group of Sri Lankan undergraduate accounting students by Abhayawansa and Fonseca (2010) revealed that, despite immersing themselves in the pedagogical tradition of Australia, the ways of conceptualising and approaching learning by these students were still influenced by their traditional collectivist culture. Thus, the generalisability of conceptions of learning obtained from Western culture is debatable.

Marshall et al. (1999, p.293) argue that, “phenomenographic studies of conceptions of learning may identify the same overall conceptions but these conceptions may be characterised by differing categories of description within different cultural or educational contexts”. Hence, the value of cross-cultural research is that it challenges mono-cultural bias and improves understandings of various aspects of learning. Moreover, it is possible to “identify both uniformities and consistencies in learning beliefs and behaviours while at the same time identifying where there is systematic covariation between cultural and learning variables” (Pillay et al., 2000, p.66).

Apparently several comparative studies have verified the value of phenomenographic research when comparing two countries with distinctive cultural backgrounds (Dahlgren et al., 2006; Dahlin & Watkins, 2000; Pillay et al., 2000; Purdie et al., 1996; Purdie & Hattie, 2002); however, each of these studies focused on their respective culture before introducing comparatives. Few studies into conceptions of learning have been conducted in a cross-cultural context, which creates a space to bring two or more cultures together. Even fewer researchers have examined conceptions of learning in such an environment, and although the investigation by Abhayawansa and Fonseca (2010) touches on some internationalised characteristics, studies in this nascent field have yet to move beyond the preliminary stage.

3.4.3 The Chinese context

3.4.3.1 The ‘paradox of Chinese learners’ – memorisation and understanding

Efforts by Western researchers to determine conceptions of learning held by Chinese learners appear to be intensely focused on the so-called ‘paradox of Chinese learners’ (Marton & Booth, 1997; Marton et al., 1997). While the memorisation-understanding nexus is part of a wider research tradition in the West, its shift to a culturally-different

eastern context has attracted more significance for many researchers who now invest their time in this field (Biggs, 1996; Marton, Dall’Alba & Tse, 1996; Marton et al., 2005).

Chinese students are usually deemed to be diligent and highly motivated in learning (Lee, 1996). These characteristics can be attributed to the Chinese culture, especially the Confucian tradition, in which education is believed to be crucial “not only for personal improvement, but also for social development” (Lee, 1996, p.26). Chinese students often perform extremely well in international competitions, particularly in the fields of mathematics and natural sciences, thereby establishing the stereotype of ‘brainy Asians’.

In contrast to this informal label, there is a co-existing stereotype, namely, ‘rote-learning Asians’ (Kember & Gow, 1991), the cause of which may be largely due to the Confucian-heritage culture or CHC (Ho, 1991). The teaching environment associated with CHC, which is frequently presented as inferior to the teaching environments of western culture, is characterised by poor quality learning, the notion of which is often deeply rooted in the thoughts of non-Chinese people especially the majority of culturally-different westerners (Biggs, 1996). According to Marton et al. (1997, p.24), the ‘paradox of Chinese learners’ begins to emerge when comparing these two stereotypes:

These stereotypes of “the brainy Asian” and “the Asian learner as a rote learner” are incompatible. Research has shown that an orientation to rote learning is negatively correlated with achievement [...] If both of these stereotypes can be demonstrated to be valid, we are left with a paradox, namely, how is it possible that students with an orientation to rote learning, which is negatively correlated with achievement, achieve so highly? [...] how is it possible that students from a culture characterised by an emphasis on memorisation adopt deep approaches (reflecting orientation towards understanding) to a greater extent and surface approaches (at least partly reflecting orientation toward memorisation)

than students from a culture not characterised by an emphasis on memorisation.

A number of early studies provided some insights and explanations for this problem (Marton, Dall'Alba & Tse, 1992; Marton, Wen & Nagle, 1996; Wen & Marton, 1993). While non-Chinese participants in research by Marton et al. (1993) distinguished memorisation from understanding, Chinese learners exhibited a different understanding. They were not found to pit memorisation against understanding but made a clear differentiation between mechanical memorisation and memorising with understanding; in other words, they made a distinction *within* memorisation. The apparently opposing conceptions of memorisation and understanding are intimately related in this sense. The processes of memorising and understanding are concurrent for most Chinese learners. Furthermore, many are able to remember something they do not initially understand by repeating it and this can also generate understanding. According to Marton et al. (1996, p.81), there is a sound explanation for this phenomenon:

[...] when a text is memorised, it can be repeated in a way that deepens understanding; different aspects of the text are focused on with each repetition [...] each time they [the participants] read the passage, they did so in a different way, focusing on different aspects of reading from a different perspective. [...] In the process of repeating and memorising in this way, the meaning of a text is grasped more fully.

In this sense, memorisation and understanding influence each other positively, and Marton, Dall'Alba and Tse (1996) argued that in understanding this the 'paradox of Chinese learners' could be resolved. Several years later, Marton et al. (2005, p.308) confirmed and elaborated this belief:

While memorisation takes place through repetition, understanding takes

place through variation. We identified two different forms of variation in the students' descriptions. Understanding can be brought about by focusing on commonalities between apparently different things on the one hand, or by looking at different aspects of the same thing, by contrasting that thing with other, different, things.

Dahlin and Watkins (2000) also found similar results in their research which compared German and Chinese students. Of particular significance is the finding that Chinese learners are able to integrate memorisation and understanding, i.e. remembering is perceived to be a factor that is integrated into understanding which differs from the German perception.

However, those homogenous findings have not been unchallenged. The intimate relationship between memorisation and understanding may need re-examination, especially when a different research approach is used. For instance, Sachs and Chan (2003) produced opposing conclusions based on quantitative results. In Sachs and Chan's (2003) study, participants appeared to distinguish memorisation from understanding; therefore, perceiving memorising as a component of understanding was not applicable. Sachs and Chan (2003, p.188) argued that, since "interview research usually tackles questions in situ, whereas questionnaire items are general", the contradiction could be attributed to the context, as "Chinese students may view memorisation-understanding as integrally related only in specific contexts, and not for learning in general". It is also possible that the Chinese students in this study could develop and change in response to certain contextual needs.

3.4.3.2 Conceptions of learning held by Chinese students

While exploring the memorisation-understanding nexus is crucial, another research orientation follows the more classic way of phenomenographic tradition, that is,

uncovering various conceptions of learning held by Chinese students.

Early research into the Chinese learning conceptions began with Pratt (1992), who interviewed 19 Chinese visiting scholars in Canada and 38 adult educators in mainland China, though they were not university learners in a strict sense. The participants' learning conceptions were categorised into four groups, namely, learning as the acquisition of knowledge or skills from others, fulfilment of responsibility to society, change in understanding of something external to self, and change in self-understanding. Some of these categories, especially learning as the fulfilment of social responsibility, are distinctive characteristics of Chinese culture.

The research findings of Fung et al. (2001), which drew on a mixed-methods approach using questionnaires and semi-structured interviews to investigate Hong Kong student teachers, verified the findings of Marton et al. (1993) with one significant substantive difference, namely, that none of the participants perceived learning as memorisation. Fung et al. (2001) contended that pure memorisation represented low and superficial understanding which was only part of the learning process. Follow-up interviews also illustrated that the 'increase of knowledge' conception in their study was more complex than the mere accumulation of factual information. These results highlight the "the dangers of cross-cultural generalisation in the area of students' conceptions of learning" (Fung et al., 2001, p.51).

In a study by Lu and Yu (2003), 168 public university undergraduate students in mainland China were asked the following open-ended question, "What do you mean by learning?". Of these participants, 20 were interviewed later. The researchers uncovered five conceptions of learning, the first three of which were identical to the early findings of Marton et al. (1993). However, Lu and Yu (2003) combined the categories of 'seeing something in a different way' with 'change as a person' and named this mixed conception 'personal change and development'. They claimed that the students did not separate conceptual change from personal change because they believed that there

were many aspects of personal change, including ways of thinking and ideas for life, which were the key components of personal development. The final and new conception identified by the researchers was called 'creation of new knowledge'. However, it was found that the intention to create was strongly influenced by external requirements, i.e. to satisfy social demands while failing to meet intrinsic needs.

The Chinese researchers Lu et al. (2006) and Wong and Wen (2001) also employed comparison to highlight conceptions of learning in differing contexts. Lu et al. (2006) conducted a study based on their earlier work (Lu & Yu, 2003) mentioned above, but this time with groups of students from 30 private universities. Comparisons were made between students from different types of HEIs. The findings were significant since the desire to gain an increase in knowledge was the only similarity between these groups of learners. A large number of private university students perceived learning as 'getting a certificate', 'the acquisition of capabilities' and 'quality improvement', all of which indicated a strong pragmatic orientation. Again, the comparison of distinctive HEIs in the two studies supported the argument that conceptions of learning depend on the context. Wong and Wen (2001) further argued that students in different places in China could hold diverse conceptions of learning. In their study, questionnaires were used to research the learning conceptions of two groups of students from the University of Hong Kong and Nanjing University. The reference point of the study was provided by the six conceptions concluded by Marton et al. (1993) and Marton, Dall'Alba and Tse (1996). Only participants who were studying the humanities were chosen in order to reduce complexity. The findings indicated that, although the two cohorts came from the same country and had a shared cultural background, their learning conceptions were quantitatively different, thereby challenging the assertion that learners from different places in China are homogenous.

Comparative studies of Chinese students and non-Chinese students in different countries with distinctive cultural contexts have generated insights into conceptions of learning and highlighted the uniqueness of learners in a Confucian culture. For

instance, a comparative study carried out by Zhu et al. (2008) demonstrated that compared to Belgian students, more Chinese learners emphasised personal change and social competence via learning. In addition, many Chinese students regarded learning as understanding, while memorisation was much less valued.

A focus on Chinese learners has facilitated a new analytical framework for research into conceptions of learning. Based on a study of Hong Kong students, Marton et al. (1997) reframed early work on learning conceptions (Säljö, 1979b, Marton et al., 1993). This reframing was integral to the research since participant conceptions of learning were so sophisticated that the existing six conceptions were inadequate to explain their experience of learning (Pillay & Boulton-Lewis, 2000). The researchers could not “afford the complexity of factors – such as context, prior experiences and the intention of an individual – fully into the equation describing conceptions of learning” (Pillay et al., 2000, p.69). Therefore, Marton et al. (1997) introduced a two-dimensional framework. The first temporal dimension of variation is concerned with acquiring, knowing and making use of, or applying. The second dimension of depth gauges surface and deep conceptions of learning. Marton et al. (1997) claimed that the categories devised by Marton et al. (1993) could also be placed into the redesigned two-dimensional framework. This more sophisticated framework by Marton et al. (1997) provided an alternative way to analyse conceptions of learning from a perspective that may facilitate better understanding (Pillay & Boulton-Lewis, 2000). Marton, Wen and Nagle (1996) further employed this analytical framework to compare Chinese and Uruguayan students. While Uruguayan learner conceptions resembled those of traditional western learners, the Chinese students exhibited obvious features of CHC learning, such as emphasising repetition and distinguishing between mechanical and meaningful memorisation.

Several limitations have become apparent in the literature reviewed in this section. First, while considerable attention has been paid to the notion of the ‘paradox of Chinese learners’, more specifically, the relationship between memorisation and

understanding (Biggs, 1996; Marton, Dall'Alba & Tse, 1992; 1996; Marton, Watkins & Tang, 1997; Marton et al., 2005; Wen & Marton, 1993), the studies aiming to uncover conceptions of learning held by Chinese learners have yet to be enriched. This is because there may be other differences and unique features of conceptions of learning held by Chinese students that need to be uncovered. The scope of research would be narrow were it merely focused on memorisation and understanding. Second, geographically, a significant number of the studies were located in Hong Kong (Dahlin & Watkins, 2000; Fung et al., 2001; Marton et al., 1997), whereas those focusing on university students in mainland China are few. Given that Wong and Wen (2001) illustrate dissimilarities of learning conceptions held by learners in Hong Kong and mainland China, it is necessary to research the qualitatively different ways that Chinese university students experience and understand learning. Third, many of these studies were conducted more than 15 years ago, while contemporary studies are rare, which highlights the need for new empirical works. Fourth, none of the aforementioned studies concerns the international or CFCSR programmes. All the research studies relevant to learning conceptions held by Chinese students either studied Chinese learners or compared Chinese students with non-Chinese students. Also, no research publication has reported on a particular context where Chinese students are taught by lecturers from other countries. This cross-cultural context characterises the CFCSR programmes in Chinese universities. With the increasing importance and prevalence of such programmes, it is necessary to explore how students conceptualise learning in this context.

3.5 Alternative approaches to conceptions of learning

In addition to the phenomenographic perspective, there are a number of alternative approaches to researching students' learning experience. Although these studies vary dramatically in epistemological and methodological perspectives, the common interest lies in theorising the teaching and learning nexus and in improving the learning

outcomes (Santos, 2008).

Conceptions of learning embed in multiple theoretical frameworks (Varnava-Marouchou, 2007) and can be studied via different approaches. In a way, they are similar to epistemological beliefs (students' ideas about the character of knowledge and how to obtain knowledge) (Chan, 2011; Ellis et al., 2008).

It is commonly stated that the research on university students' epistemological beliefs began with William Perry (1970), who conducted his study on college students in the US. Based on a 15-year study, he developed a theory of university learners' cognitive development, which is embedded in his influential work *Forms of Intellectual and Ethical Development in the College Years*. This work "is based on 84 complete four-year sequences of yearly, end-of-the-year interviews covering students' experiences from freshman year to senior year" (van Rossum & Hamer, 2010, p.98). Using an open interview method (van Rossum & Hamer, 2010), Perry (1970) found that undergraduates in their early stages of study often believed that knowledge was definite, simple and straightforward and should be delivered by lecturers. However, the students at later stages of their study were discovered to move beyond this and sensed that knowledge was more complex and indefinite than they expected. The developmental process and epistemological growth demonstrated that during learning in HE, students gradually changed from absolutists (Schommer, 1990) and dualists to relativists. It is noted that Perry's research is "a purely descriptive formulation of students' experience" (Perry, 1981, p.107), not a prescriptive programme intentionally to enable learners to develop. Perry's intellectual or epistemological development is composed of nine stages or positions, which can be grouped into four basic stages (dualism, multiplicity, relativism and commitment).

The correspondence between epistemological levels and various conceptions of learning is identified by Entwistle (2000). While the reproductive learning conceptions may seem to be similar with "dualistic/absolutist thinking", the transformative

conceptions could be seen to resemble the “more contextual, relativistic reasoning” (McLean, 2001, p.400). The change is qualitative rather than quantitative.

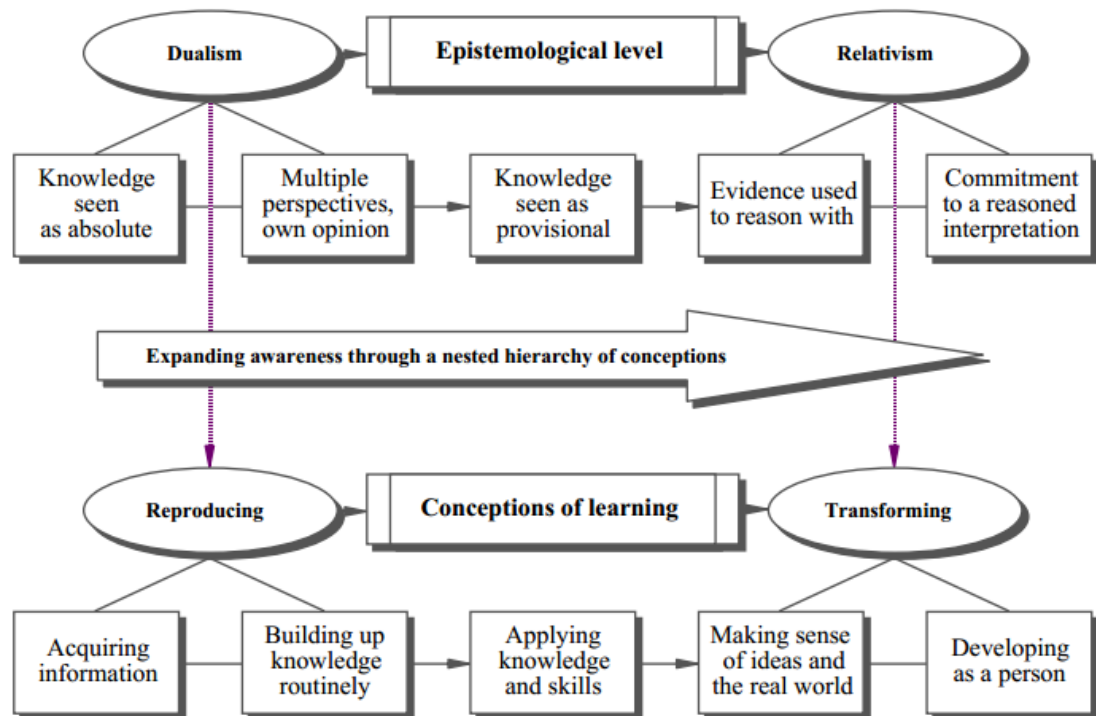


Figure 3.1 Conceptions of learning and epistemological levels

Source: Entwistle (2000, p.2)

Perry’s scheme has greatly influenced research on student learning. Moore (2002) proposes that “even after thirty years of extensive and varied scholarship, the Perry scheme continues to reflect the most critical dimension to educators’ understanding of learning and students’ approaches to learning” (p.18). However, it may also be seen to be problematic for some researchers in the conduct of empirical studies (Glenberg & Epstein, 1987; Ryan, 1984).

Both Perry’s research and most phenomenographic studies are basically qualitative, more specifically, interview is a key data collection technique for both. There is, however, a significant difference between the two. The developmental aspect is one of the key characteristics for Perry’s intellectual and ethical scheme. But it seems there is a disagreement among phenomenographers as to whether or not the conceptions

are developmental. For instance, Van Rossum and Hamer (2010) name their findings (learning as Increase knowledge, Memorising, Reproductive understanding/application or Application foreseen, Understanding subject matter, Widening horizons and Growing self-awareness) as the developmental model of students' learning conceptions. However, Trigwell (2000, p.80) in an interview finds that some phenomenographers disagree with this:

This [developing from lower levels to higher levels] is not necessarily the case with hierarchical categories of description arising out of phenomenographic studies. The categories are constituted from self-reports of a group of people, a bit like a snapshot of that group at a particular time. The range of categories arises not through individual development, but because the categories are relational or peculiar to the individual in a particular context. So a group of individuals would normally exhibit a range of categories in a particular context. The same group might exhibit a different range in a different context.

The existence of a developmental hierarchy is also found to be questionable for some researchers in a number of empirical studies (Makoe et al., 2007; Richardson, 2007).

In contrast to the previous perspective, some other approaches to studying learning are more quantitative and commonly related to what might traditionally be seen to be a more "psychological approach to studying learning" (van Rossum & Hamer, 2010, p.34).

According to Entwistle (1997a), such approaches tend to apply concepts, theories and research methods to the explanation of student learning. But Marton (1986) does not think the psychological approaches could make a difference with respect to education practice. Marton (1986, p.43) proposes that "[m]ental models, which locate the objects of description in the minds of people, are in line with the 'knowledge interest'

of psychology”, and they are “not particularly helpful in solving practical pedagogical problems”. Dahlgren (2005, p.27) criticises the prevalence and dominant interest in of quantitative and psychological research or experiments on learning studies and claims that such research paradigm aims to “investigate learning processes in a ‘pure’ form” but “has restricted its definition of learning”. It is obvious that researchers in this paradigm attempt to expound learning behaviours “from the outside, as a detached, objective observer” (Entwistle, 1997a, p.13). Dahlgren (2005, p.27) states that:

By using materials with little or no inherent meaning, such experiments describe and explain only how students set about learning when the task has been drained of meaning. Yet most human learning depends on meaning and it is directed towards it. To learn is to strive for meaning, and to have learned something is to have grasped its meaning.

Therefore, although the traditional quantitative and psychological approach has offered substantial academic achievements, it could be argued that there needs to be a change and fundamental transformation in terms of perspective and methodology if we intend to get a more comprehensive and holistic picture of student learning. An alternative approach to studying learning like phenomenography is an attempt in this sense. It “seeks an empathetic understanding of what is involved in student learning derived from students’ descriptions of what learning means to them” and also “involves a shift not just of methodology, but of perspective” (Entwistle, 1997a, p.13). Such shift in perspective is significant, as Entwistle (1984, p.16) contends:

It is important [...] to keep in mind the implications of the change in perspective which shifts attention from the teacher’s or the researcher’s view to that of the student. This shift is crucial in ensuring that the explanations of student learning not only have ecological validity within the real university or college context, but also to enable the researcher to make an interpretation of the findings which does justice to the totality of

the students' own experiences.

Despite the weaknesses, the quantitative research tradition has its strength of emphasising change in conception. Even though there is a large number of phenomenographic studies on learning conceptions which find various ways of experiencing learning, not much attention is paid to how to change and develop toward high-level conceptions. Tynjälä (1997) claims that “the phenomenographic tradition of the study of conceptions has not focused much attention on change in conceptions” (p.279), and “we do not know very much about the individual development of these conceptions” (p.278). Although phenomenographic researchers are concerned with the mapping of conceptualisation of learning and the hierarchical relationship in between them, it seems the dynamic or developmental aspect is often ignored, and the outcome can take on a static character.

In contrast, “the more cognitivist line of study concerning the conceptions of physical phenomena and changes in them is extensive” (Tynjälä, 1997, p.279). A number of researchers have proposed theories of conceptual change. For instance, Vosniadou (1994) identifies three categories of conceptual change, namely, enrichment, revision, and change in the theoretical framework. Posner et al. (1982) deem that there are four critical pre-conditions for conceptual change: unsatisfied with existing conceptions, the existence of an alternative intelligible conception, the new conception should be plausible, and it should suggest the possibility of a fruitful programme. Chi (2008) points out three types of conceptual change, namely belief revision, mental model transformation, and categorical shift. More recently, Vosniadou and Kampylis (2013) attempt to relate conceptual change to innovation in education.

In this sense, “more research on changes in learning conceptions” (Tynjälä, 1997, p.278) is needed, and we also have to identify and understand necessary conditions that facilitate this change and development. This is a critical issue that promotes enriched learning conception studies in the recent development of phenomenography

and variation theory (Åkerlind, 2015; Åkerlind et al, 2014; Marton, 2015).

The third approach has its root in the findings of some phenomenographic learning conception studies. Based on some qualitative data obtained from a comparative study between Australian and Japanese students (Purdie, et al., 1996), Purdie and Hattie (2002) developed an inventory to assess students' conceptions of learning. It is named the *Conceptions of Learning Inventory* (COLI), which is composed of 45 items and can definitely be applied to larger population. Because of the creation of this instrument, some recent larger scale studies on learning conceptions tend to be more quantitative-oriented.

Makoe et al. (2007), however, find that most studies on learning conceptions continue to be qualitative in nature, which may raise the problem that the same interview transcripts are interpreted by different researchers in various ways. In other words, the interpretation could be highly subjective. This issue, according to Makoe et al. (2007, p.307), "may be avoided by operationalising the constructs that have emerged from qualitative research in the form of scales within quantitative inventories and questionnaires". It is also possible to "investigate conceptions of learning in larger samples of students and to compare the patterns of scores obtained by different subgroups" (Makoe et al., 2007, p.307). Furthermore, Peterson et al. (2010, p.169) state that "the efficiency of survey results mean that they can be readily fed back to students and teachers as a basis for dialogue that promotes conceptual change".

However, this instrument has been criticised and several defects identified. Peterson et al. (2010) "found some items in the COLI factors with potentially poor conceptual fit". For example, "Learning means I can talk about something in different ways" and "Learning means I have found new ways to look at things" are separated as two different conception factors. Peterson et al. (2010) also argue that some items like "I don't think I will ever stop learning" and "Learning is not only studying at school, but knowing how to be considerate to others" are complex and may result in

misinterpretation.

3.6 Chapter summary

Existing literature related to conceptions of learning has been synthesised and evaluated in this chapter. A number of themes are examined such as the definition of conceptions of learning, major quantitative and qualitative conceptions and the structural relationships between conceptions. An important reason for studying learning conceptions lies in their close relationship with learning approaches. Therefore, the literature reviewed in this chapter also provided arguments by researchers on the connections between learning conceptions and learning approaches.

Given that conceptions of learning may vary in different environments, a number of studies contrasting conceptions in various contexts and countries are found to have been carried out. Moreover, there are numerous publications which are interested in eastern countries that are socially and culturally different from the West, where most previous studies were conducted. Since the current research concerns the Chinese context, pertinent studies on Chinese students' conceptions of learning are reviewed and evaluated in this review. Several perspective and approaches to researching learning have also been reviewed in this chapter. The limitations have been identified in the existing body of knowledge in this field in order to open a space for this study.

As mentioned in the beginning of the chapter, phenomenography has been highly influential in the empirical investigation of conceptions of learning to date, and this study also adopts the phenomenographic approach, as described in the next chapter.

Chapter 4. Research methodology

4.1 Introduction

This chapter focuses on phenomenography, the research approach adopted for the study. It begins with a statement of reasons for employing phenomenography as the research approach. The chapter then provides an explanation of its nature and outlines several major characteristics of phenomenography, specifically some essential terminology. The philosophical foundation is analysed based on ontological and epistemological assumptions, and the relationship between the two. While phenomenography has made a significant contribution to educational research and apparently suits this study, alternative research approaches such as grounded theory and phenomenology which share some commonalities with phenomenography are also considered. However, a comparison made between phenomenography and the other two approaches and theories reconfirms the appropriateness of phenomenography for this study.

While the first part of the chapter is devoted to phenomenography in general, numerous frameworks developed by phenomenographers are reviewed, contrasted and chosen in the second part to facilitate a better understanding and analysis of conceptions. This chapter intensively includes some theoretical considerations, while implementation of the empirical study is articulated in the next chapter.

4.2 A qualitative inquiry

As stated in the previous chapter, there are generally two different ways to study conceptions of learning: more psychological and quantitative oriented and more experientially oriented (Purdie & Hattie, 2002; Tynjälä, 1997). I had to choose one orientation before this study commenced. It seems that this dichotomy is related to the

division of quantitative research and qualitative research. The former assumes that there is an objective world that can be observable and measurable, which is referred to as positivist (Burns, 2000). It seeks for causal explanations based on natural sciences and stresses “empirical quantifiable observations” (Husén, 1997, p.17).

By contrast, the latter claims that the world is socially constructed and is advocated by interpretivists (Glesne, 1999). It underlines understanding and “is derived from the humanities with emphasis on holistic and qualitative information and interpretive approaches” (Husén, 1997, p.17). Moreover, qualitative research is often undertaken in natural settings (Creswell, 1994), and it is not difficult to get people to talk about their understandings, experience and conceptualisation of a phenomenon under such circumstances (Morrison et al., 2002). In addition, Strauss and Corbin (1998) deem that qualitative methods can be applied to achieve better understanding about some phenomena that people know little about.

It would be more appropriate to adopt qualitative research methodology in this study. First, it focuses on understanding the learning conceptions held by the participants. Second, it invites students to talk about their lived learning experience in a natural context, no experiment is conducted. Third, it is concerned with understanding a group of IET students’ various ways of experiencing learning, which has seldom been done before.

Having determined the research tradition, I will elaborate on the reasons for using phenomenography as the research approach in this study.

4.3 Reasons for employing phenomenography

This study builds on a phenomenographic tradition of research in education, and phenomenography has been selected as a qualitative research approach to guide data

collection and analysis in order to identify and describe student conceptions of learning. In this study, the phenomenon of interest is not a specific concept or course, but learning in a general sense in an IET programme. There are several reasons for the selection of this research methodology.

First, the selection of research methodology should be primarily based on the aim of research (Denzin & Lincoln, 1994). Phenomenography is defined by Marton (1994, p.4424) as “the empirical study of the limited number of qualitatively different ways in which various phenomena in, and aspects of, the world around us are experienced, conceptualised, understood, perceived and apprehended”. Tight (2016, p.331) claims that “phenomenography is closely associated with an interest in higher education practice, particularly the student learning experience”. As stated, this study set out to investigate the qualitatively different ways in which IET undergraduates experience or understand learning in a CFCRS programme in a Chinese university. In other words, it is intended to explore the variations of conceptions of learning held by this cohort of 23 undergraduate students. It can be seen that the research interest and the approach adopted are highly compatible. Therefore, phenomenography fits well with the aim of this research.

Second, the key principle of a second-order perspective in phenomenography (Marton, 1981, 2015) satisfies the need to explore conceptions of learning from the participants’ viewpoint. The research interest ultimately lies in the participants’ learning experience, rather than my personal analysis of learning or the nature of learning in this Sino-Australian collaborative programme. Consequently it targets the relationship between the experiencer (undergraduates) and the experienced (learning), in other words, how students experience, conceptualise or understand their learning in the programme in question. Marton (1986, p.33) contends that researchers in phenomenography “do not try to describe things as they are, nor do we discuss whether or not things can be described ‘as they are’; rather, we try to characterise how things appear to people”. In this sense, taking a second-order perspective (Marton, 1981, 2015), one of the most

basic tenets in phenomenography, seems to be an appropriate way to achieve this goal. Examining learning from the learners' perspective is vitally important, in that it could enhance understanding of the nature of learning and further provide insights into improving approaches to learning and learning quality as a whole (Entwistle, 1984).

Third, the theoretical framework developed by phenomenographers (Marton, 1988; Marton & Booth, 1997; Pramling, 1983) provides the basis for in-depth analysis of differing learning conceptions and the possible relationship therein to enable a comprehensive and logical understanding of learning. The 'new phenomenography' (Marton & Booth, 1997; Marton & Pang, 1999) "shifts the primary focus from methodological to theoretical questions" (Pang, 2003, p.145) and could help to provide insightful analysis of different ways to experience learning. The focus of this development is the nature of the distinct ways of experiencing a phenomenon which draws on the anatomy of awareness. Thus differences may be described as changes in the experiencers' structure of awareness. The 'new phenomenography' facilitates differentiation between one way of understanding something and another in terms of changing patterns of awareness structure. Some aspects of a particular conception may be more or less important than others in a different conception. Therefore, the logic relationship between conceptions are expected to be built up and an overview of learning conceptions could be shaped. The holistic picture demonstrating the position of each learning conception could help to improve experience of learning and further the quality of education.

To understand IET students' ways of experiencing learning in the selected transnational education programme is a significant aim for this study. Meanwhile, it is also an expectation that the research findings can be used for improving learning experience and quality in the programme. Therefore, as McKenzie (2003, p.83) contends: "[w]hen one of the intentions of research is to make use of the findings for improving practice, it becomes relevant to consider pragmatic criteria in choosing an appropriate research approach". Bowden (2000, p.3) claims that phenomenography has a developmental

aspect, which means seeking to “find out how people experience some aspect of their world, and then to enable them or others to change the way their world operates, and it usually takes place in a formal educational setting”. Phenomenographic research findings and outcomes are not only for understanding, but also for applying to help students to learn and further improve education practice. As Bowden (2000, p.4) argues, “insights from the research outcomes can help in the planning of learning experiences which will lead students to a more powerful understanding of the phenomenon under study, and of other similar phenomena”.

4.4 Phenomenography

4.4.1 Definition

When investigating aspects of student learning at the University of Gothenburg in the 1970s, a group of researchers, including Ference Marton, Lennart Svensson, Lars Owe Dahlgren and Roger Säljö, attempted to seek answers to two important questions: "What does it mean to say that some people are better at learning than others?" (Marton, 1994, p.4424) and "Why are some people better at learning than others?" (Marton, 1994, p.4424). They began by questioning the prevalent positivist paradigm with a focus on what, rather than how much, the students had learned. The results demonstrated that the outcome and process of learning were closely related, which meant that they were two different aspects of one entity. Thus, it was deemed that researchers' understanding of learning needed to be deepened and it was necessary to adopt a new means to determine how students experience learning (Dall'Alba, 1996).

The term 'phenomenography' originates from the Greek, 'phainomenon' (appearance) and 'graphein' (description); thus, phenomenography is based on a description of things as they appear to be (Pang, 2003, p.145). Marton (1994, p.4424) defines

phenomenography as “the empirical study of the limited number of qualitatively different ways in which various phenomena in, and aspects of, the world around us are experienced, conceptualised, understood, perceived and apprehended”, and it is “interested primarily in surfacing variation of experience and understanding” (Cousin, 2009, p.183). As Svensson (1997) contends, the introduction of phenomenography inspires an alternative way to study learning, which could be different from the traditional quantitative research. Phenomenography “has refrained from positing any cognitivistic explanations or mental models of cognition. It argues that human understanding is necessarily a human-world relation, rather than the result of some kind of general cognitive functioning system possessed by the individual” (Pong, 1999, p.2).

Trigwell (2006) concludes that phenomenography has several key features. Firstly, philosophically it is non-dualistic; in other words, meaning emerges from the relationship between individuals and phenomena. The assumption differentiates phenomenography from cognitivism, which separates people from reality. Secondly, it is universally believed to be a qualitative approach, which is in contrast to quantitative approaches to studying learning experiences. Thirdly, it takes a second-order perspective by focusing on others’ perceptions rather than expressing the researcher’s personal opinion. Fourthly, phenomenography emphasises the variations or differences rather than the similarities of experience and understanding. Finally, the categories found and interpreted are relational. As indicated in the figure below (Figure 4.1), all these characteristics are located on the right-hand branch. The results derived from phenomenography are typically categories of description (Marton, 1981) and ‘outcome space’ (Marton & Dahlgren, 1976), which consists of distinct conceptions and the relationship therein.

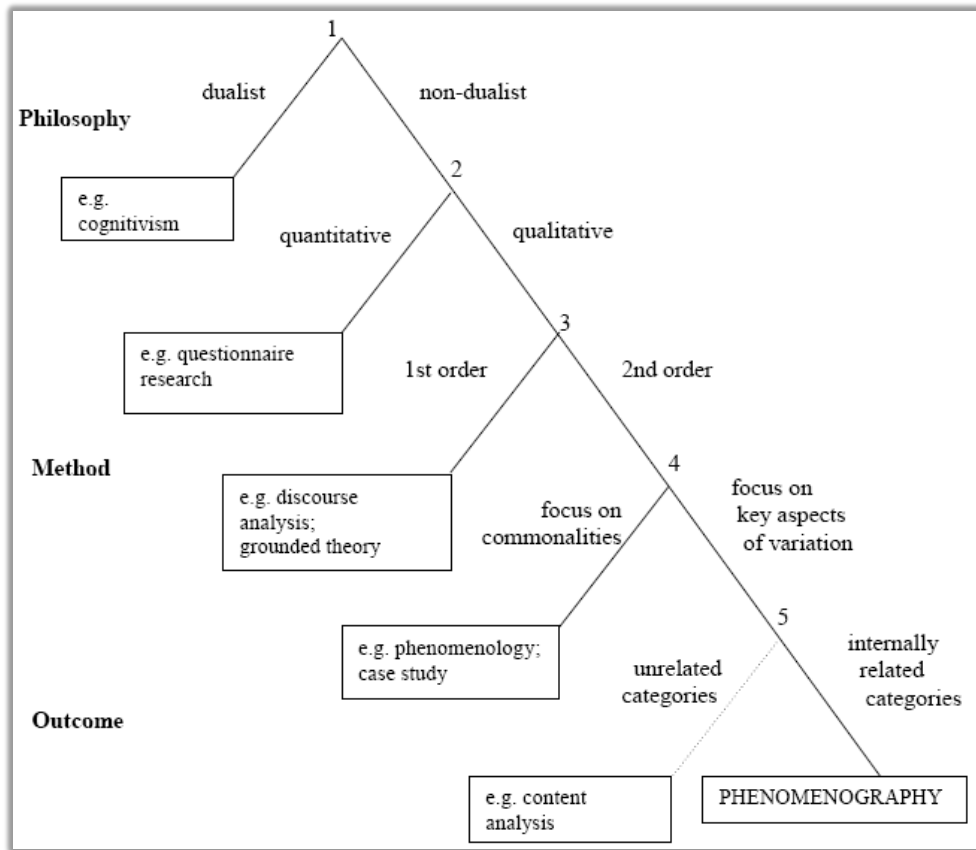


Figure 4.1 Defining Phenomenography

Source: Trigwell (2006, p.369)

Despite the fact that some methodological factors and theoretical components relate to phenomenography, Marton and Booth (1997, p.111) claim that it is neither a method nor a theory of experience, rather it is essentially “a way of-an approach to-identifying, formulating, tackling certain sorts of research questions, a specialisation that is particularly aimed at questions of relevance to learning and understanding in an educational setting”. The central interest of phenomenographic research lies in “the variations in ways people experience phenomena in their world [...] and phenomenographers aim to describe that variation” (Marton & Booth, 1997, p.121). What phenomenographers are seeking is “the totality of ways in which people experience, or are capable of experiencing, the object of interest and interpret it in terms of distinctly different categories that capture the essence of the variation” (Marton & Booth, 1997, p.121).

Having defined phenomenography, the subsequent sections provide further analysis on the three key terms in phenomenography, which is followed by an exploration of philosophical foundation.

4.4.2 Ways of experiencing (conceptions)

Marton (1996, p.178) notes that:

In order to make sense of how people handle problems, situations, the world, we have to understand the way in which they experience the problems, the situations, the world, they are handling or acting in relation to. Accordingly, the capability for acting in a certain way reflects a capability of experiencing something in a certain way. The latter does not cause the former. They are logically intertwined.

This is the significant driving force of phenomenography, and it is also the value of obtaining an understanding of human experience (Yates et al., 2012).

The focus, and also the unit, of phenomenographic study is the way of experiencing the phenomenon in question (Marton and Booth, 1997). A certain way of experiencing something is “experiencing something as something, experiencing a meaning that is dialectically intertwined with a structure”; and it is also “a way of discerning something from, and relating it to, a context” (Marton & Booth, 1997, p.112). Marton and Booth (1997, p.112) claim that there must be some ways of experiencing things that are more sophisticated and comprehensive than others, and one way of experiencing can be distinguished from another based on the fact that “different aspects or different parts of the whole may or may not be discerned and be objects of focal awareness”.

According to Sandberg (1997), the underlying aim of a phenomenographic approach is

to reveal and depict the informants' ways of experiencing something as faithfully as possible, because education researchers are better able to understand teaching, learning and other activities with the help of phenomenographers' precise descriptions. In phenomenographic studies, 'ways of experiencing' substantially indicate a relationship between the experiencer and the phenomenon being experienced. A number of terms like 'conceptions', 'ways of understanding', 'ways of comprehending' and 'conceptualisations' have been used as synonyms for 'ways of experiencing' (Marton & Booth, 1997). Furthermore, some verbs such as 'experience', 'perceive', 'conceive', 'conceptualise' and 'understand' can be used interchangeably (Bamwesiga et al., 2013), but they should be used in an experiential sense rather than a psychological, cognitivist sense (Marton & Booth, 1997).

Since individuals' distinctive ways of experiencing aim for a common phenomenon, it could be inferred that conceptions are relational and in most cases hierarchical (Åkerlind, 2005a; 2005d). Phenomenographic researchers are not only expected to uncover different conceptions, but they are also required to determine the hierarchical relationships between various conceptions or ways of experiencing (Trigwell, 2006). Theoretically, the ways of experiencing obtained from a phenomenographic study are able to represent the full range of opinions held by a group of people on a particular phenomenon at a specific time (Åkerlind, 2005d).

One of the key assumptions of phenomenography is that the qualitatively different ways in which people experience a certain phenomenon is finite. Marton (1996) and Marton and Booth (1997) contend that people are able to communicate with each other because there is a limited number of ways of experiencing phenomena, and it is only possible to focus on certain aspects of a phenomenon at a time. If the ways are infinite, things in the world would be unrecognisable and consensus could be difficult to reach. Also there is another extreme which is similar to paresthesia as described by Marton and Booth (1997, p.101):

If we were capable of the total experience of situations and phenomena, a sort of pnaesthesia, and if we actually made use of this capability all the time, things would always look the same all the time, for all of us. Our way of experiencing things would no longer be driven by specific interests, wishes, capabilities, or previous experiences. Nothing would be more or less important than anything else; the world would lose structure. All meaning would disappear, as meaning actually derives from the figuratively differentiated structures of awareness. When meaning is total, we lose it.

Therefore, both infinite ways and total experience seem to be unreasonable. In contrast, the limited number of ways to experience phenomena in the world with different focus is the assumption that phenomenographers accept.

4.4.3 Second-order perspective

Marton (1981, p.178) proposes that there are two different pathways by which to study various phenomena in the world: the first-order perspective in which “we orient ourselves towards the world and make statements about it”, and the second-order perspective, whereby “we orient ourselves towards people’s ideas about the world (or their experience of it) and we make statements about people’s ideas about the world (or about their experience of it)”.

Traditionally, if researchers intended to study a learning phenomenon, they would analyse it from their own perspective (first-order). By contrast, phenomenography chooses the learner’s perspective (second-order) (Marton & Svensson, 1979) or a ‘from-the-inside’ perspective to describe phenomena as people experience them (Richardson, 1999). As Entwistle (1984) claims, studies adopting the first-order perspective essentially insist on an external view in examining student learning, and

they often fail to provide useful and new insights. Thus, the phenomenographic approach was invented choosing a second-order perspective (Marton, 1981, 2015) to overcome this limitation, and it is basically a qualitative, rather than a quantitative, research approach (Sandberg, 1997). There are two reasons for favouring such an innovative perspective:

Firstly-and most obviously-we consider that to find out the different ways in which people experience, interpret, understand, apprehend, perceive or conceptualise various aspects of reality is sufficiently interesting in itself, not least because of the pedagogical potentiality and necessity of the field of knowledge to be formed. Secondly, the descriptions we arrive at from the second-order perspective are autonomous in the sense that they cannot be derived from descriptions arrived at from the first-order perspective. (Marton, 1981, p.178)

This perspective could also be of interest as a useful form of pedagogy (Irvin, 2005), since it facilitates the exploration of learning experience issues from the student's own perspective (Lucas, 1998). As Booth (1993, p.187) states:

[the phenomenographic tradition] aims in the first instance to describe rigorously the experience of learning - that is to say, learning from the point of view of the learners themselves - rather than to bring theory to bear on the observations. Such research does not try or intend to present objective measures of learning, in terms of exam grades or theories or hypothesis confirmation. It presents instead descriptive categories that attempt to catch the essence of, and the essential differences in, the ways in which things or concepts or events are understood or experienced. [...] such research results can be brought to bear on relevant aspects of the instruction by providing the lecturers with greater insight into their students' learning than are otherwise to be found.

Van Rossum and Schenk (1984, p.74) also express a similar meaning when comparing the phenomenographic approach with the psychological approach to learning:

A striking feature of research into the ways in which people see, experience or understand aspects of the world around them is that it does not look for psychological characteristics of individuals and that there is also no intention to explain human behaviour. Rather, the emphasis lies on research aimed at describing and understanding human experiences, especially in learning situations (an experiential, second-order perspective).

Since the significant objective of phenomenography is to study human experience, the second-order perspective (Marton, 1981, 2015) provides a perspective for uncovering others' understanding, perception and insight into some phenomena in reality, rather than that of the researcher's own. People' experiences are expected to be faithfully and variously described and analysed, while researchers' interventions and knowledge should be kept to an absolute minimum.

4.4.4 Categories of description & outcome space

The results of a typical phenomenographic study are usually categories of description (Marton, 1981). As Booth (1993, p.189) points out, the "fundamental results of a phenomenographic study are careful descriptions of the categories found" and the categories of understanding of a phenomenon are most often referred to as conceptions". Based on the categories of description, the outcome space can be further constructed, which "shows the relationships among the various categories of description according to their logical complexity and inclusiveness and describes the variation in the possible ways in which a phenomenon is experienced" (Marton & Pang,

2008, p.536). Marton (1994, p.4424) briefly portrays the process from scattered utterance to the final outcome space;

These differing experiences, understandings, and so forth are characterised in terms of 'categories of description', logically related to each other, and forming hierarchies in relation to given criteria. Such an ordered set of categories of description is called the 'outcome space' of the phenomenon or concept in question.

Laurillard (1993, p.45) identifies three kinds of outcome space. The structural relationship between the categories may be;

- an inclusive, hierarchical, outcome space in which the categories further up the hierarchy include previous, or lower, categories
- an outcome space in which the different categories are related to the history of interviewee's experience of the phenomenon, rather than to each other
- an outcome space which represents a developmental progression, in the sense that the conceptions represented by some categories have more explanatory power than others

An ideal outcome space would be expected to “represent the full range of possible ways of experiencing the phenomenon in question, at this particular point in time, for the population represented by the sample group collectively” (Åkerlind, 2005d, p.323). There are three criteria for categories of description, the first of which is that each category should be able to relate to the phenomenon and describe a different aspect of it in order to depict a unique way of understanding the phenomenon. Secondly, each category should be logically and hierarchically related, from simplicity to complexity. Thirdly, the number of categories should be controlled to be as few as possible (Guisasola et al., 2013; Marton, 1996; Marton & Booth, 1997). The categories of

description could be deemed to be theoretically and pedagogically helpful as long as they meet all these three criteria (Guisasola et al., 2013).

The phenomenographic approach has been widely used to explore people's qualitatively different ways of experiencing a phenomenon in a huge number of disciplines, such as economics, bioscience, physics, chemistry, information technology, mathematics, nurse education, geography, librarianship, project management, psychology, engineering and computer science (Chen & Partington, 2006; Chen et al., 2008; Dahlgren, 1980; Diehm & Lupton, 2012; Dupin et al., 2015; Ellis et al., 2008; Forster, 2015; Linder & Erickson, 1989; Lybeck et al., 1988; Maybee, 2013; Shenton & Hayter, 2007; Trigwell, 2006; van Rossum & Schenk, 1984; Virtanen & Lindblom-Ylänne, 2010; Wakimoto & Bruce, 2014).

4.4.5 Philosophical foundation

As Svensson (1997, p.171) notes,

Phenomenography has its roots in the general scientific tradition, not in philosophy or some specific school of thought. It represents a reaction against, and an alternative to, the then dominant tradition of positivistic, behaviouristic and quantitative research.

Svensson's (1997) statement implies that the philosophical foundation of phenomenography was not particularly well developed in the early days (Åkerlind, 2005d), and metaphysical considerations were not prioritised.

It is an empirical research tradition. This means that metaphysical beliefs and ideas about the nature of reality and the nature of knowledge do not come first. What come first are more specific assumptions and ideas

directly related to the specific character of the empirical research.
(Svensson, 1997, p.164)

Despite this under-development, phenomenography has a unique ontological and epistemological assumption (Svensson, 1997). Ontologically, phenomenographers take a non-dualistic viewpoint, insisting that:

There is not a real world 'out there' and a subjective world 'in here'. The world is not constructed by the learner, nor is it imposed upon her; it is constituted as an internal relation between them. There is only one world, but it is a world that we experience, a world in which we live, a world that is ours. (Marton & Booth, 1997, p. 13)

Basically, non-dualist ontology was specified in response to 'dualist ontology' and 'representational epistemology'. Dualist ontology insists that there are two entities, namely, the individual and the outside and distinctive world, and it is often held by positivists. Uljens (1996, p.113) describes representational epistemology as follows:

[...] presuppose[s] metaphysical dualism, i.e., the existence, ultimately, of two different kinds of worlds: one that is constituted of events and objects and the other, a mind or a mental world which is an aggregate of for instance symbols, representing a mental reconstruction by the subject.

In contrast, non-dualism deems that there is no absolute, independent so-called 'objective' world, nor do researchers have to separate phenomena from individuals. Phenomenography takes a second-order perspective and its focus lies in "the experience-as-described, rather than on either the psychological process generating the experience or the 'objective facts' themselves" (Ashworth & Lucas, 1998, pp.415-416). The point is that "experiences, conceptions, understandings, etc., [...] refer to subject-object relations of an internal nature" (Marton, 2000, p.115), and the world "is

a world which is always understood in one way or in another, it cannot be defined without someone defining it” (Marton, 2000, p.115). Therefore, ontologically phenomenographic research is non-dualistic, which is different from the philosophical foundation of other theories, such as cognitivism (Trigwell, 2006). It is not possible to talk about the outside world or a phenomenon that has not been experienced, since it is problematic to directly compare one’s understanding with the reality, as Uljens (1996, pp.112-113) contends;

We may then compare different understandings with each other. We can, it is argued, compare students’ conceptions of a subject matter with the lecturers’ (or researchers’, or textbooks’) conceptions of that subject matter, but we cannot compare a student’s understanding with reality itself. And certainly, to compare one’s own view of reality with reality itself is a problem.

Furthermore, there is a basic assumption that knowledge is subjective as well as relative, and that it can be acquired by thinking and other activities (Kinnunen & Simon, 2012); thus, the nature of knowledge and conceptions is internally relational (Svensson, 1997).

While ontology considers what we look at and poses questions such as ‘what is existence?’ and ‘what are physical objects?’ (Thomas, 2009), epistemology refers to how we look at and find knowledge, and may raise questions like “how can individuals achieve meaning, and thereby knowledge, about the reality in which they live?”, “how is this knowledge constituted?” and “under what conditions can the knowledge achieved be claimed as true?” (Sandberg, 2005, p.48).

The epistemological stance for phenomenography lies in intentionality (Marton & Pang, 2008). As Pang (2003, p.145) states, the “understanding of the phenomenographic approach is to realise that its epistemological stance is grounded in the principle of intentionality, which embodies a non-dualist view of human cognition insofar as it

depicts experience as an internal relationship between human beings and the world”. From a phenomenographic perspective, knowledge is constituted through the relationship between the experiencer (people) and the experienced (some aspects of the world) and demonstrates a human-world relationship (Marton & Pang, 2008). The foci of knowledge in phenomenography refers to the varied meanings of the phenomenon being experienced and the similarities and dissimilarities of these meanings (Svensson, 1997).

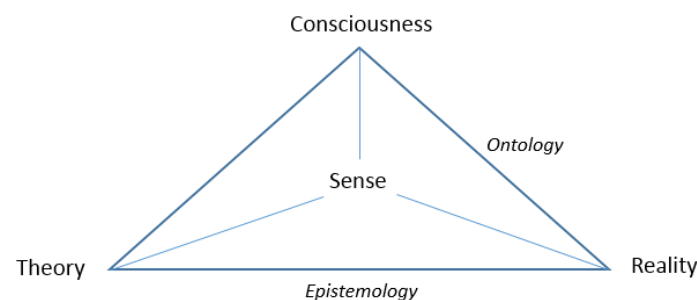


Figure 4.2 The relationship between the ontological and epistemological problems

Adapted from Uljens (1996, p.115)

The relationship between ontological and epistemological issues in phenomenography is illustrated in the figure above (Figure 4.2). According to Uljens (1996), the ontological issue relates to the relationship between consciousness (awareness) and reality (phenomenon), while the epistemological issue refers to the relationship between theory (language, sign, symbol) and reality. The ‘theory’ in the figure refers to “reality only by virtue of the content of a mental state which picks out an object” (Uljens, 1996, p.115). Sense can be seen to be the medium of theory and reality, and there is no direct relationship between theory and reality. The difference “between linguistic reference (epistemology) and mental reference (the ontological question) is clarified by noting that a term (sign, word) has no direct relation to an object but is always dependent upon how it is treated by an individual mind” (Uljens, 1996, p.115). In a broad sense, ontological assumptions might become epistemological because “the research object has the character of knowledge” (Svensson, 1997, p.167).

Based on the ontological and epistemological arguments, Marton and Booth (1997, p.122) claim that the descriptions of experience are neither psychological, since they stress the psychological act and structure of experience rather than the nature of the phenomenon, nor physical, because the “material entity appears in a first-order description” and the perspective “takes the experiencer for granted”. They are “descriptions of experience of the internal relationship between persons and phenomena: ways in which persons experience a given phenomenon and ways in which a phenomenon is experienced by persons” (Marton and Booth, 1997, p.122).

4.5 Educational value of phenomenographic research

Phenomenography “provides a way of revealing what is educationally critical in the different ways in which the phenomenon can be experienced” (Pong, 2000, p.60). The categories of description are valuable in themselves because they contain individuals’ conceptions and possible solutions, and are able to provide useful information from which to identify students’ learning process (Ramsden et al., 1993). Säljö (1988, p.44) believes that the conceptions “can be seen as a meta-language usable in the context of understanding the process of learning and in terms of which difficulties in understanding can be made explicit and reflected upon”. Therefore, ways of experiencing or conceptions arrived at in phenomenographic studies are expected to be able to inform the practice of educators.

Given the conceptions of learning concluded by many phenomenographic studies and their essentially hierarchical relationship, it is reasonable to advocate a change toward higher-level conceptions (Entwistle & McCune, 2004), which indicates “passing from previous and/or naive conceptions to explicit conceptions based on scientifically validated theories” (Rabanaque & Martínez-Fernández, 2009, p.515). Despite some researchers (e.g. Boulton-Lewis et al., 2004) believing that it may not be easy to alter

individuals' existing conception of learning, there is some evidence that this could really occur. Tynjälä's (1997, p.278) research demonstrates the likelihood of change and also reveals some important factors in this procedure, noting that "the learning environment might be an important factor influencing students' learning conceptions". However, there is a need to enrich this aspect of research since the number of studies of how to facilitate such a change is limited.

Marton (1986, p.47) contends that "[e]ncouraging lecturers to pay attention to students' ways of thinking and to facilitate students' realisation that there are different ways of thinking may be the most important pedagogical implications of a phenomenographic view of learning". Good teaching should involve a change of the conceptions of learning. Therefore, another significant contribution of this research approach lies in 'phenomenographic pedagogy', which entails "facilitating conceptual change by the learner in context" (Bowden, 1990, p.1). The assumption is that "from the lecturers' perspective, some types of learning are better than others; learning for understanding that involves conceptual change is superior to learning of information or skills" (Trigwell et al., 2005, p.350). The goal of phenomenographic pedagogy is to "raise lecturers' awareness of their thinking and practice and on how variation in this practice might be related to their students' approaches to learning" (Trigwell et al., 2005, p.350). In a sense it would be better for lecturers to combine conceptual change with information transfer rather than transferring information solely (Bowden, 1988). Accordingly, some teaching advice has been provided for lecturers by Ramsden and Marton (1988, pp.277-280)

- Make the learners' conceptions explicit to them
- Focus on a few critical issues and show how they relate
- Highlight the inconsistencies within and the consequences of learners' conceptions
- Create situations where learners centre affection on relevant aspects
- Present the learner with new ways of seeing

- Integrate substantive and syntactic structures
- Test understanding of phenomena; use the results for diagnostic assessment and curriculum design
- Use reflective teaching strategies

At the individual level, the interaction between an interviewer and interviewee in a phenomenographic study can be fruitful. Interviewees are often encouraged by interviewers to reflect on something they have never considered before, and although this is a difficult process, it may produce some new insights, which can enable the participants to re-conceptualise their learning as a whole (Felix, 2009). As a result, the subjects' way of thinking may be deepened and changed in one way or another, which may happen during a one-on-one interview or a group discussion (Marton, 1986).

Furthermore, the findings and results generated from such studies could be utilised to further optimise the course and programme design, as a result of which students' learning experience could be enhanced and their opportunities for learning enriched (Dringenberg et al., 2015; Felix, 2009; Marshall et al., 1999). For instance, Prosser and Trigwell (1997) attempted to describe and analyse the utilisation of the results generated from phenomenographic research for the design and implementation of an academic development programme. Their efforts essentially "exemplify how phenomenographic ideas and the results of phenomenographic research, can be built into the design of teaching development workshops for staff teaching in higher education" (Prosser & Trigwell, 1997, p.41).

4.6 Modes and development of phenomenographic research

Hasselgren and Beach (1997) propose five modes of conducting phenomenographic studies developed from the Gothenburg group: experimental, discursive, naturalistic, hermeneutic and phenomenological. Marton (1986) elaborates three lines of

phenomenographic inquiry, which are summarised by Trigwell and Prosser (2009, p.325) as follows:

- general aspects of learning and relationships between them;
- variation in the way concepts are understood;
- variation in the way people conceive of various aspects of the world around them.

The first line refers to the study of the general aspects of learning, approaches to and outcomes of learning. The second line focuses on exploring people's understanding of some basic concepts and principles in various academic domains, while the last line "centres around the 'pure' phenomenographic interest in describing how people conceive of various aspects of their reality" (Marton, 1986, p.38).

Phenomenography is often criticised for the lack of theoretical consideration because of its empirically-based origin. Apparently early phenomenographic studies excessively emphasise the importance of uncovering variations of people's conceptions, while few reflect on the nature of the way of experiencing a phenomenon (Säljö, 1994). In response to this gap in the research, 'new phenomenography' begins to enrich this theme, thereby valuing the theoretical aspect. It was not until the 2000s that the theoretical foundation of phenomenography was elaborated with the so-called 'variation theory' (Marton, 2015; Marton & Booth, 1997; Marton & Tsui, 2004), when the concern changed from methodological to theoretical, namely, "from questions about how to describe different ways of experiencing something to questions concerning what is the nature of the different ways of experiencing something described" (Pang, 2003, p. 146). In other words, phenomenographers began to "turn from particular research questions (e.g., what is the variation in experiencing X?) to more theoretical questions (e.g., What does it mean to talk about variation in experience? and how does this variation come about?)" (Micari et al., 2007, p. 461.).

This empirical study, which sets out to uncover variations in conceptions of learning held by a group of students in the CFCRS programme, belongs to the first line of phenomenographic research. In addition, this research also places emphasis on the theoretical analysis of conceptions and exploring the nature of different ways of experiencing or understanding learning, which is a critical concern for 'new phenomenography'. Therefore, it is imperative in this chapter to introduce the theoretical frameworks developed in response to the 'new phenomenography' and can be used as analytical tools when examining conceptions. But before expounding the frameworks, it is necessary to consider other potential approaches such as grounded theory and phenomenology that are closely related to phenomenography and might also be appropriate for this study.

4.7 Comparison of alternative methodologies - Grounded Theory & Phenomenology

There are two alternative methodologies which are closely related to phenomenography, namely grounded theory and phenomenology. Both of the two theories or approaches have a number of similarities as well as differences with phenomenography. Phenomenography cannot be developed without drawing on the principles, concepts and approaches from grounded theory and phenomenology (Kinnunen & Simon, 2012; Marton & Booth, 1997). Some prominent features of phenomenography may be highlighted via a comparison to facilitate a better understanding. More importantly, the comparison strengthens my decision to employ phenomenography rather than grounded theory or phenomenology as the research approach for this study.

4.6.1 Phenomenography & grounded theory

Developed by Barney Glaser and Anselm Strauss in the 1960s, grounded theory has been widely utilised and regarded as a crucial qualitative research method (Kinnunen & Simon, 2012). Before its inception, social research was dominated by developing hypotheses based on existing literature and then testing the validity of certain theoretical arguments (Allan, 2003). However, grounded theory is a reverse process with the aim of finding “what concepts and hypotheses are relevant for the area one wants to research” (Glaser & Strauss, 1967, p.2). It distinguishes the verification of a theory from its generation. However, emphasising the latter does not necessarily mean ignoring the former, since the verification of a theory concluded in such research is a critical component of the grounded theory (Strauss, 1987). Gibson and Brown (2009, p.27) characterise grounded theory by the following process:

- Concepts and hypothesis should be generated through the analysis of data.
- Theory development should involve the use of coding, memo writing, theoretical sampling, triangulation and the constant comparative method.
- These processes and procedures should be used to develop categories, properties and theoretical relations.
- Hypothesis should then be formed through both theoretical induction and deduction.
- Theory work should continue until data saturation has been achieved.

Grounded theory can be an effective research methodology where a researcher intends to establish a theory or hypothesis which is applicable to a situation that can be represented by the origin of the data in that study (Glaser & Strauss, 1967), since the data is the point of departure of all theories.

It is notable that two major distinguished schools, namely those of Glaser and Strauss respectively, were formed after the two authors' pioneering work in 1967 (Gibson & Brown, 2009). The Glaser school stresses the inductive process of data analysis, which apparently adhere to the substance of their early work; on the other hand, the Strauss school introduces some structure to analyse the data so that the analytical process is more directed (Kinnunen & Simon, 2012). Grbich (2012) systematically compares the two schools, as shown in the table below (Table 4.1).

<i>Characteristic</i>	<i>Glaser</i>	<i>Strauss</i>
Style	Discovery	Verification
Question	Problem + variations	Dimensionalising and critiquing
Process	Emergent directions	Coding and hypothesis testing
Literature review	Ongoing from first category identification	When categories emerge-if desired
Coding	Constant comparison	Three levels of data fracturing
Open coding	Words, lines, sections	Words, lines, paragraphs
Axial coding	Unnecessary	Meticulous procedure
Selective coding	Core variables only	Core categories to other categories
Theory	Theory generation	Theory verification

Table 4.1 Grounded theory: differences between Glaser and Strauss

Source: Grbich (2012, p.81)

Phenomenography and grounded theory have several similarities. Firstly, their perspective of knowledge is basically non-positivistic, stressing the importance of participants' accounts and perceiving them as valid data. Secondly, the data analysis for both is inductive rather than deductive. As Richardson (1999) observes, the concept of 'bracket' claimed by phenomenographers is similar to the key norm of grounded theory, which suggests that the theory should be refined against and discovered in the subjects' utterances, rather than accepting and verifying some existing conclusions and theories. Thirdly, they both require a repetitive data analysis process to allow for new discoveries, which may be crucial for the whole research. Fourthly, there are more similarities at the meta-level, as stated by Kinnunen & Simon (2012, p.213);

a certain congruent model how the data analysis proceeds: getting to

know your data well, looking for emerging categories/codes (possibly using only reduced data set), refining categories/codes (using the whole data set), making connections between the categories/codes, placing the results into an existing pool of knowledge on the topic.

Kinnunen and Simon (2012) also identify numerous differences between the two. While phenomenography aims to uncover the variation of people’s experience, grounded theory is interested in the construction of a theory or model to “show action and change, or the reasons for little or minimal change” (Strauss & Corbin, 1990, p.123)”. Researchers who base their study on grounded theory can find a relatively clear step-by-step guideline to analyse the data and build their theory and model, whereas there are no detailed instructions in the phenomenographic approach. Phenomenographers can only obtain some discretion in respect of how to perform a data analysis.

The similarities and differences are summarised in the table below (Table 4.2).

	Phenomenography	Grounded theory (Strauss and Corbin)
Focus	Variation in perceptions of the phenomenon Second order perception	Experience, perception, action
RQ/goal of the research	E.g. instructors’ perceptions of students’ success	E.g. to explore how computer science majors experience the process of doing programming assignments in a CS1 course
Data source	Often semi-structured interviews or writings	Semi-structured interviews, writings, observations, artefacts, even quantitative data
Analysis process	Inductive, iterative, uses comparison Sorting, categorizing, abstracting	Inductive, iterative, uses comparison Open, axial and selective coding phases Paradigm model gives guidelines
Results/outcome of the analysis	An outcome space = categories of description, which are logically related to each other. Often displayed as a table.	Models, stories that describe the variation in context, actions, intervening events and consequences

Table 4.2 Summary of some of the aspects of phenomenography and grounded theory

Source: Kinnunen & Simon (2012, p.213)

4.6.2 Phenomenography & phenomenology

It was Edmund Husserl who first established phenomenology in the 20th century (Larsson & Holmström, 2007). According to Grbich (2012, p.92), phenomenology is “an approach that attempts to understand the hidden meanings and the essence of an experience together with how participants make sense of these”. Farina (2014, p.50), however, argues that there is no generally-accepted definition of phenomenology, and he further contends that “it is not a doctrine, nor a philosophical school, but rather a style of thought, a method, an open and ever-renewed experience having different results, and this may disorient anyone wishing to define the meaning of phenomenology”.

While Husserl’s phenomenology is regarded as being the classical/realistic/transcendental phenomenology, several forms, including existential phenomenology, hermeneutic phenomenology and heuristic phenomenology (Grbich, 2012) have since been developed by numerous scholars and philosophers (Heidegger, 1962; Merleau-Ponty, 1962; Moustakas, 1994; van Manen, 1990), and they have progressed far beyond Husserl's early work.

A number of scholars have observed the differences and similarities between phenomenography and phenomenology (Brammer, 2006; Hasselgren & Beach, 1997; Marton & Booth, 1997; Neuman, 1997; Pratt, 1992; Sandberg, 1997).

Firstly, phenomenography employs a second-order perspective, whereas phenomenology uses a first-order one (Marton, 1986). Phenomenologists “‘bracket’ (hold in check) their preconceived notions and depict their immediate experience of the studied phenomenon through a reflective turn, bending consciousness back upon itself” (Marton, 1986, p.41), while phenomenographers are normally required to take a second-order perspective and interpret others’ perception of the phenomenon in question (Marton & Booth, 1997). Existing experiences, presuppositions, theories,

findings and personal biases should be 'bracketed' to illustrate subjects' conceptions as faithfully as possible in phenomenography.

Secondly, phenomenographers do not distinguish between a 'reflective' and 'pre-reflective experience'. As Greasley and Ashworth (2007, p.821) claim,

Phenomenography focuses on reflected-on experience, meaning that the emphasis is on the experience as experienced. This this emphasis sets aside [...] any pre-reflective, taken-for granted assumptions in the verbalised experience of the situation.

Yet both the 'reflective' and the 'pre-reflective' are the core concepts of phenomenology. This disparity is deemed by Marton (1986, pp.41-42) to be the most fundamental difference, as he states that:

[Edmund Husserl] emphasised the distinction between immediate experience and conceptual thought. In a phenomenological investigation, we should "bracket" the latter and search for the former. Phenomenographers do not make use of this distinction, at least not as a starting point in research. We try instead to describe relations between the individual and various aspects of the world around them, regardless of whether those relationships are manifested in the forms of immediate experience, conceptual thought, or physical behaviour.

Thirdly, the most predominant difference is that, while the aim of phenomenology is to elicit the essence of all the ways in which a phenomenon can be experienced, the purpose of phenomenography is to reveal and identify the qualitatively different ways in which people experience a certain phenomenon (Marton, 1988; Neuman, 1997; Sandberg, 1997). They are running in different directions, since one is orientated to the essence and the other to the variations. As Marton (1986, p.41) observes,

“phenomenographers try to characterise the variations of experience, for phenomenologists the essence of experience usually is interpreted as that which is common to different forms of experience”.

There are other differences in addition to the notable ones mentioned above. Phenomenography often argues that data analysis should be based on a collective level, yet phenomenology is more interested in individuals’ experiences (Barnard et al., 1999). With respect to the research outcome, phenomenographic analysis leads to various ways of experiencing certain phenomenon, whereas phenomenological analysis results in meaning units identification (Barnard et al., 1999). The differences are summarised in the table below (Table 4.3).

<i>Phenomenography</i>	<i>Phenomenology</i>
The structure and meaning of a phenomenon as experienced can be found in prereflective and conceptual thought.	A division is claimed between prereflective experience and conceptual thought.
The aim is to describe variation in understanding from a perspective that views ways of experiencing phenomena as closed but not finite.	The aim is to clarify experiential foundations in the form of a singular essence.
An emphasize on collective meaning.	An emphasis on individual experience.
A second-order perspective in which experience remains at the descriptive level of participants’ understanding, and research is presented in a distinctive, empirical manner.	A noumenal first-order perspective that engages in the psychological reduction of experience.
Analysis leads to the identification of conceptions and outcome space.	Analysis leads to the identification of meaning units.

Table 4.3 The relationship between phenomenography and phenomenology

Barnard et al. (1999, p.214)

Also, the roles that researchers play in both research traditions are different. Phenomenographic researchers do not regard themselves as a source of data, rather their intervention should be kept to a minimum. Data is generated from the transcripts of the informants. On the contrary, phenomenological researchers set personal experience as the point of departure and describe their experience as much as possible (Creswell, 1998).

Aside from the differences, phenomenography and phenomenology have some similarities; for example, they both set human experience and awareness as the object of the research (Barnard et al., 1999). Moreover 'bracketing' is a key practice during data collection and analysis, even though the things that need to be bracketed are different.

Furthermore phenomenographers may have to learn from the well-established phenomenological tradition if they intend to enhance their own theoretical foundation. Phenomenography has its roots in pedagogy and empirical education studies, rather than the phenomenological tradition (Barnard et al., 1999). However, phenomenographers began to seek a philosophical basis in phenomenology (Hasselgren & Beach, 1997) and some terms had to be borrowed from phenomenology to promote the development of phenomenography (Hasselgren & Beach, 1997; Marton & Booth, 1997). Marton and Booth (1997, p.117) contend that phenomenography can be regarded as being a child of the phenomenology family and they further deem that

To some extent, however, that phenomenology is grounded in a set of particular theories and methods that phenomenography shares only partly, if at all, phenomenography has to be seen as no more than a cousin-by-marriage of phenomenology.

As mentioned, the central focus of this study is IET students' variations in conceptions of learning in the selected CFCRS programme and the potential relationship between the conceptions. The selection of a research approach based on this focus determines the rejection of both phenomenology and grounded theory. A predominant reason for refusing phenomenology lies in its ultimate aim of the single essence or the invariance of a phenomenon. Phenomenology in this sense is significantly contradictory to the concern of this study. In addition, phenomenology focuses particularly on individual rather than collective experience, which might make it difficult to see the possible

relationship of experience. Grounded theory is not an appropriate approach either, as it primarily stresses developing and formulating a theory. However, this study aims to understand the different ways in which IET students experience learning and the concern is describing, interpreting and understanding experience, whilst not formulating a theory.

The above sections theoretically outline phenomenography as the research approach adopted in this study. The subsequent parts of this chapter are devoted to articulating and contrasting different theoretical frameworks developed by phenomenographers, and an appropriate one is chosen as a tool for analysing conceptions found in this research.

4.8 Theoretical and analytical frameworks for understanding conceptions

As stated at the outset of this chapter, an important reason for employing phenomenography lies in the theoretical frameworks developed by phenomenographers (Marton, 1988; Marton & Booth, 1997; Pramling, 1983), which allows in-depth analysis of different learning conceptions and the potential logical relationship therein to obtain a holistic view of ways of experiencing or understanding learning. Thus it is necessary in this section to articulate these frameworks and determine a suitable one.

Conception is the unit of description in Phenomenography (Marton & Pong, 2005); yet, there is a need for instruments that can further analyse conceptions. Consequently, a number of researchers (Marton et al., 1993; Pramling, 1983) developed theoretical frameworks for making an in-depth and detailed examination of the elements and structure of conceptions. The two most basic are the what/how framework and the referential/structural framework. Harris (2011, p.109) contends that the what/how

framework “allows the conception to be analysed separately from the actions and intentions related to it”, and the referential/structural framework “allows the parts and contexts of the conception to be identified”. Additionally there is a merged one integrating both frameworks (Marton & Booth, 1997). These frameworks are used somewhat differently by phenomenographers to meet their own research aims (Marton & Booth, 1997).

It is worth noting that the what/how and the referential/structural frameworks have distinctive origins, and that researchers may choose to use one or both of them. For instance, Marton et al. (1993) use the integrated framework in their influential research, whereas Fyrenius et al. (2007) solely use the what/how framework to uncover learners’ conceptions of medical physiology, and Edwards (2005) only employs the referential/structural framework to explore tertiary students’ conceptions of web-based information searching. Based on a systematic review of 56 studies which utilised these frameworks, Harris (2011) finds that 12 of them (21%) only used the what/how framework, whereas 28 (50%) solely used the referential/structural framework, and 9 of them (16%) used both. Since authors’ understanding of these frameworks and some of their key aspects was not totally identical, they tailored them to fit their own research aims (Harris, 2011; Marton & Booth, 1997).

4.7.1 The what/how framework

The what/how framework was first proposed by Pramling in 1983, when she was investigating children’s conception of learning. Pramling found that the participants’ responses could be categorised into two distinctive questions, one of which was “dealing with what the children perceive as learning” (Pramling, 1983, p.88), while the other was “dealing with the children’s ideas of how particular learning comes about” (Pramling, 1983, p.88). The former may be called the ‘what’ aspect of learning and the latter the ‘how’ aspect. The findings illustrated that children understood learning as to

do, to know and to understand; thus, it could be implemented by doing, perceiving and thinking. In terms of the relationship between the 'what' and 'how' aspects, Pramling (1983, p.107) explains that:

Theoretically, all these combinations are possible (i.e., any of the "what" categories can be combined with any of the "how" categories). [...] But there is some trend towards a certain correlation i.e., learning TO DO takes place primarily by DOING; learning TO KNOW takes place primarily by PERCEIVING. Logically, learning to UNDERSTAND comes about in the first hand by THINKING.

Although young children have no clear recognition of the nature of academic learning, it is reasonable to assume that the distinction of what is learned and how it is learned is somewhat generalisable (Marton et al., 1993). Therefore, this framework should be considered and employed in more phenomenographic studies.

Drawing on the concept of intentionality, Marton and Booth (1997) further contend that the what/how framework contains some subcategories; more specifically, the 'what' aspect has a direct object and the 'how' aspect has an act and indirect object. They explain that the direct object is "the content that is being learned" (Marton & Booth, 1997, p.84), the indirect object refers to "the quality of the act of learning [...] what the act of learning aims at" (Marton & Booth, 1997, p.84), and the act is "the way in which the act of learning is carried out" (Marton & Booth, 1997, p.84). Their analysis is demonstrated in the figure below (Figure 4.3).

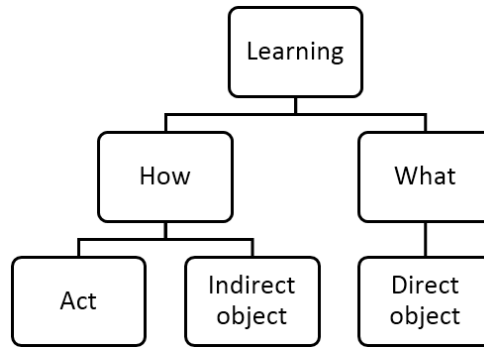


Figure 4.3 The what/how framework

Source: Marton & Booth (1997, p.85)

However, Irvin (2006) observes that there are some different understandings and ways of employing the ‘what’ and ‘how’ aspects because of the ambiguity of early publications. Some researchers (e.g. Reid & Petocz, 2004) consider the ‘what’ to be identical with the referential aspect and the ‘how’ to be the same as the structural aspect. The underpinning can be found in Marton’s (1988, p.66) early analysis;

We could say that the outcome represents the “what” aspect of learning and the approach represents the “how” aspect. Furthermore-in accordance to what has been said here-it seems reasonable recursively to discern the “what” and “how” aspects again within both, in terms of their referential and structural aspects.

This argument is illustrated by the figure below (Figure 4.4).

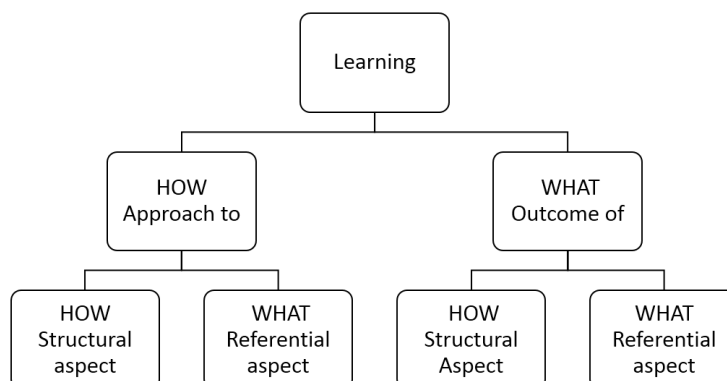


Figure 4.4 Logical structure of some categories used to describe learning from an experiential perspective

Adapted from Marton (1988, p.66)

Irvin (2006, p.112) also notes that although “most authors suggest that the what aspect corresponds to the meaning or object of the phenomenon, what the how aspect corresponds to remains unclear”. The second level of ‘what’ and ‘how’, that is, the ‘act’, ‘direct object’ and ‘indirect object’, is also problematic. For instance, the indirect object can be interpreted as either the quality of the act or what the act of learning aims for (Marton & Booth, 1997). In conclusion, the ambiguity of the framework has resulted in numerous different interpretations (Irvin, 2006); thus, researchers have to clarify and tailor the analytical tool to fit their own studies.

4.7.2 The referential/structural framework

Reed (2006, p.3) contends that in phenomenographic studies

[...] it is not enough simply to determine a set of qualitatively different categories to have a phenomenographic result. In fact, it is not so much the categories *per se* that are important, but rather the differences and similarities that serve to link and differentiate one category from another, i.e. the structure and meaning related to the categories.

The identification of referential and structural aspects (Marton, 1988) is a notable change that can be seen as the further development of the what/how framework (Harris, 2011). It was the result of an exploration of the conceptions of learning by Marton (1988), who created this new analytical tool and related it to Pramling’s (1983) dichotomy of ‘what’ and ‘how’ aspects.

Bowden and Marton (2004, p.30) state that:

[the nature of a way of experiencing something] can be defined in terms of two intertwined aspects. When we talk about qualitatively different ways of experiencing something we have to deal with differences in structure and differences in meaning. To experience something implies discerning it from the context of which it is a part and to relate it to that context or to other contexts. To experience something also implies discerning the parts of what we experience and relating these to each other and to the whole.

The referential aspect of a phenomenographic analysis captures the global meaning of the phenomenon. The structural aspect is composed of an internal horizon and an external horizon. According to Cope (2004), Gurwitsch's (1964) structure of awareness is the theoretical foundation for the internal/external horizon division. Marton (2000) and Marton et al. (2004) deem that awareness is used interchangeably with consciousness, which means "the totality of a person's simultaneous experiences" (Marton, 2000, p.109), or "the totality of a person's experiences of the world, at each point in time" (Marton et al., 2004, p.19). Essentially awareness is layered, because "whenever people attend to something, they discern certain aspects of it, and by doing so pay more attention to some things and less attention or none at all to other things" (Marton et al., 2004, p.9). Gurwitsch (1964, p.4) presents a layered model of awareness and contends that:

[...] every total field of consciousness consists of three domains, each domain exhibiting a specific type of organisation of its own. The first domain is the theme, that which engrosses the mind of the experiencing subject, or as it is often expressed, which stands in the "focus of his attention." Second is the thematic field, defined as the totality of those data, copresent with the theme, which are experienced as materially

relevant or pertinent to the theme and form the background or horizon out of which the theme emerges as the centre. The third includes data which, though copresent with, have no relevancy to, the theme and comprise in their totality what we propose to call the margin.

Furthermore, Marton and Booth (1997, p.98) use the example of a reader reading a book to illustrate how a layered awareness can be applied to a very specific learning situation;

As you read this, the text is the theme of your awareness, and issues such as the nature of experience, understanding, phenomenology, and ways of experiencing number belong to the thematic field. The same theme (this text) might, of course, be seen against the background of different thematic fields. [...] Furthermore, there are things are temporally and spatially coexistent with our reading of the text, such as the room in which you are sitting, [...] All that which is coexistent with the theme without being related to it by dint of the content or meaning, Gurwitsch called the margin.

In phenomenography, Gurwitsch's (1964) notions of theme, thematic field and margin are replaced by internal and external horizons (Cope, 2004); more specifically, the internal horizon refers to the theme, whereas the external horizon involves the thematic field and margin, as shown in the figure below (Figure 4.5).

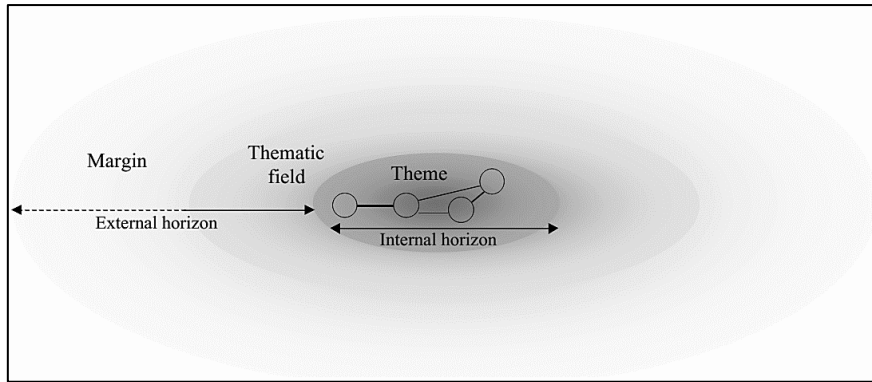


Figure 4.5 A structure of awareness

Source: Cope (2004, p.11)

Cope and Prosser (2005, p.350) describe the components, structure and relationship of the two horizons as follows;

The internal horizon consists of the aspects of the phenomenon simultaneously present in the theme of awareness, and the relationships between these aspects and between the aspects and the phenomenon as a whole. The external horizon consists of the thematic field and the margin, that is, all aspects that are part of awareness at a particular instant but which are not thematic. The external horizon as an area of awareness forms the context in which the internal horizon sits. The boundary between the external and internal horizons delimits the phenomenon from its context.

It is noted that “a way of experiencing depends on how the parts of the phenomenon are distinguished and appear at the same time in the learner’s focal awareness and the parts of it move into the background” (Ornek, 2008, p.4). Drawing on Gurwitsch’s (1964) notions, when experiencing something, it is normal that with some aspects coming to a person’s focal awareness, other aspects recede to the background (Ornek, 2008).

There is an intimate relationship between these two aspects; the “structural aspect is dialectically intertwined with the referential (or meaning) aspect of the conception” (Marton et al., 1993, p.278). Distinctive conceptions would be different “both with regard to how the phenomenon and its component parts are delimited and related to each other (the structural aspect) and with regard to the global meaning of the phenomenon (the referential aspect)” (Marton et al., 1993, p.278). Marton and Booth (1997, p.87) contend that “[s]tructure presupposes meaning, and at the same time meaning presupposes structure”. When we experience something, the meaning and structure are dialectically intertwined and occur simultaneously (Marton & Booth, 1997).

Marton and Booth (1997, p.87) draw on the example of a deer in the woods to better illustrate the meaning of structural and referential aspects;

To elaborate first on what we mean by structural aspect, we need to point out that to experience something in a particular way, not only do we have to discern it from its context, as a deer in the woods, but we also have to discern its parts, the way they relate to each other, and the way they relate to the whole. Therefore, on seeing the deer in the woods, in seeing its contours we also see parts of its body, its head, its antlers, its forequarters, and so on, and their relationships in terms of stance. The structural aspects of a way of experiencing something is thus twofold: discernment of the whole from the context on the one hand and discernment of the parts and their relationships within the whole on the other. Moreover, intimately intertwined with the structural aspect of the experience is the referential aspect, the meaning. In seeing the parts and the whole of the deer and the relationships between them we even see its stance-relaxed and unaware of our presence or alert to some sound

unheard by us-and we thus discern further degrees of meaning.

Using an example of a deer in the woods, Marton and Booth (1997, p.87) also explain the two categories of horizons;

[...] the external horizon of coming on the deer in the woods extends from the immediate boundary of the experience - the dark forest against which the deer is discerned - through all other contexts in which related occurrences have been experienced (e.g. walks in the forest, deer in the zoo, nursery tales, reports of hunting incidents, etc.). The internal horizon comprises the deer itself, its parts, its stance, its structural presence.

This framework, which includes terms such as referential and structural aspects and internal and external horizons, is illustrated in the figure below (Figure 4.6).

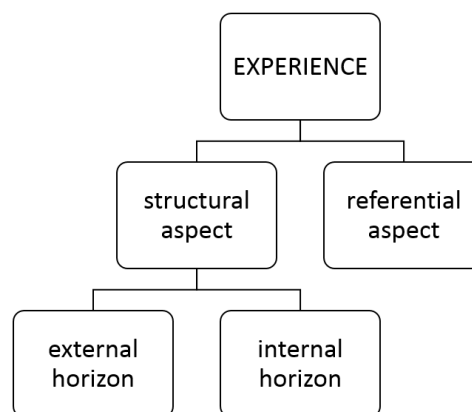


Figure 4.6 The unit of a science of experience, a way of experiencing something

Source: Marton & Booth (1997, p.88)

Although pioneering phenomenographers have endeavoured to elaborate the referential and structural framework and its second level external and internal horizons, problems remain, and some key issues have yet to be further clarified. For instance, the

boundary between this framework and the what/how one is blurred, which may cause confusion when used in empirical studies. In addition, Irvin (2006, p.120) particularly criticises the external horizon for a lack of clarification, and argues that;

This definition [of external and internal horizon] is vague, especially concerning the external horizon. It does not identify what the “whole” is or how the relationship between parts of the phenomenon and this whole differ from relationships within the internal horizon.

4.7.3 The integrated framework

Every conception encompasses a ‘what’ (the object of learning) and ‘how’ (the way of going about learning) component, both of which have dialectically intertwined referential and structural aspects. The what/how framework deepens the analysis of the meaning conceptions contain, and the referential/structural framework can help to understand the structure of conceptions. They are both interdependent (Marton & Booth, 1997); thus, Marton and Booth (1997) provided a synthesised model that integrates the two, as shown in the figure below (Figure 4.7). The left-hand side of the diagram illustrates the how aspect of learning, whereas the right-hand demonstrates the “way in which the direct object of learning is experienced or understood” (Marton & Booth, 1997, p.91).

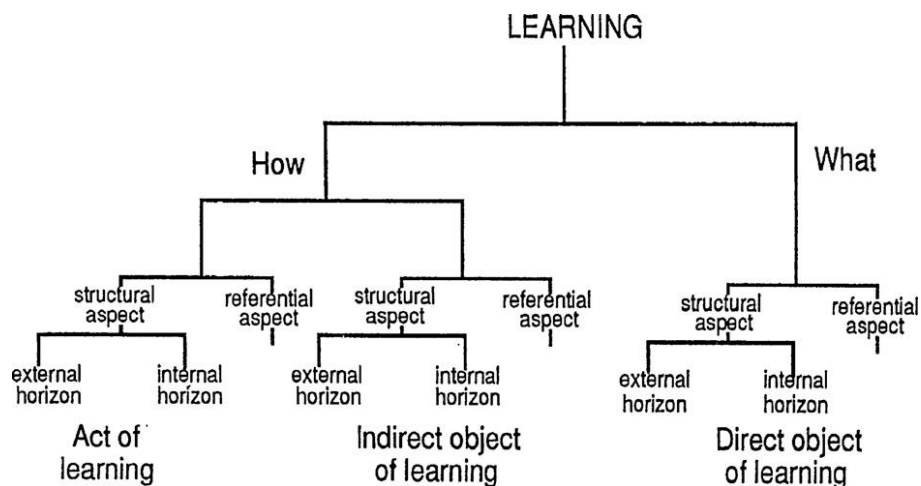


Figure 4.7 The experience of learning

Marton & Booth (1997, p.91)

This analytical model is indeed an effective tool for researchers who intend to conduct an in-depth analysis of experience, provided that the research is appropriately designed and the data collected is sufficiently rich and insightful (Harris, 2011). In Harris' (2011) view, the what/how and referential/structural frameworks should be better understood as analytical tools than theoretical support because of their weak link to theory. If reasonably and clearly used, they can provide

[...] researchers with a way to 'think apart' intertwined understandings, processes, parts, motives, and contexts. [...] these frameworks do have merit as they can lead to researchers thinking beyond the conception. The what/how framework encourages researchers to analyse data in light of not just what is being understood, but to also consider the process, actions, and motives behind this understanding. The referential/structural framework encourages researchers to contextualise people's conceptions and examine the parts that comprise them. (Harris, 2011, p.117)

Nonetheless, all of these merits and functions can only be presented when "studies adequately explain these frameworks and use them in a rigorous manner" (Harris, 2011, p.117).

Given the comprehensiveness of the integrated analytical framework, it is not possible to explore any experiences according to all the aspects or terms, as Marton and Booth (1997, p.92) acknowledge;

All the different aspects of the experience of learning illustrated [...] are present in every experience of learning. But they are surely not always-probably never-present in all accounts of the experience of learning. It would be overwhelmingly tedious if every learning experience were described with respect to all its aspects on all occasions.

When using this framework, it is strongly suggested that the data collection and analysis should be more transparent so that other researchers can use it if they wish (Harris, 2011).

4.7.4 An analytical framework for this study

The crucial aim of this study is to uncover the IET students' qualitative variations of experiencing their learning in general in a chosen CFCRS programme. The frameworks discussed above have been viewed to be effective and sound analytical tools in phenomenography; however, a decision has to be made as to which of them can be used to interpret the data collected for the study.

The synthesised model was discarded because of its excessive and unnecessary complexity. When systematically reviewing some empirical studies that used an integrated framework, such as that of Marton et al. (1993), it was found that there were too many redundancies and confusions when the data was interpreted in the light of this framework. Moreover, as the authors conceded, in some cases "the what aspect is mentioned, in another the how aspect, sometimes the referential aspect and

sometimes the structural aspect is emphasised” (Marton et al., 1993, p.285). Conceptions seemed to be seldom expressed in a complete form. The what/how framework was also discarded because, as discussed above, some of the crucial terms in this framework are still debatable and have not yet been clearly defined. In addition, its theoretical underpinnings appear to be very weak, with only a loose connection with intentionality (Harris, 2011; Marton & Booth, 1997).

Compared to the two tools analysed above, the referential/structural framework is relatively strong, convincing and rigorous and thus used in this study. Cope (2004, p.14) contends that “the ‘black art’ of phenomenographic data analysis can be enlightened if the analysis is conducted using the analytical framework of a structure of awareness”. The referential/structural framework has a clear relationship with the existing theory (Harris, 2011; Marton & Booth, 1997), to be more precisely, Gurwitsch’s (1964) structure of awareness. The theoretical framework “allows researchers to examine the parts of the conception and the contexts in which it can exist” (Irvin, 2006, p.286). The structure of awareness may also be utilised to “demonstrate the typical hierarchical, inclusive nature” of ways of experiencing (Cope, 2004, p.15). Cope (2004) is confident that the employment of the structure of awareness, or more specifically the identification of key dimensions such as the internal and external horizons when analysing the description of the outcome space could improve the validity of phenomenographic research for two reasons. First “the structure indicates to readers that the researcher has developed the categories of description in a considered way” (Cope, 2004, p.15). Second, “the structure allows easier and better informed scrutiny of the results by readers” (Cope, 2004, p.15).

4.9 Chapter summary

The research approach adopted in this study has been described in this chapter. Various aspects of phenomenography are depicted, including the definition, terminology,

philosophical underpinnings, values for education, different modes and development. As a relatively new approach, it has some connection with certain well-developed research traditions, the two most significant of which are grounded theory and phenomenology. While phenomenography draws on both of these, it is also different from them, and the similarities and differences have been illustrated in this chapter to facilitate a better understanding of the approach employed in this research.

By identifying and discerning the component parts, phenomenography has developed theoretical and analytical frameworks to facilitate an in-depth interpretation of conceptions. The advantages and disadvantages of these frameworks are examined here with a systematic review and comparison. The referential/structural framework is chosen as a tool to analyse and interpret the learning conceptions in the research findings chapter due to its relatively solid theoretical foundation and concise nature.

While the present chapter exclusively contains some theoretical illustrations pertinent to phenomenography, the focus of the following chapter is on the implementation of it, including data collection and analysis, validity, reliability and generalisability.

Chapter 5: Implementation of the research

5.1 Introduction

This chapter builds upon the previous one in which phenomenography is introduced as the qualitative approach adopted for this study. While Chapter 4 characterises phenomenography from a theoretical perspective, Chapter 5 depicts the implementation of this research approach. This chapter begins with a description of the trials and pilot study, from which I learned how to improve my practice when conducting a phenomenographic study. Then I detail the data collection and analysis, in which a number of critical and debatable issues encountered when gathering and interpreting the data in the formal study are discussed and contrasted, and I attempt to choose, develop, and illuminate my practice as a researcher. Finally this chapter articulates pertinent quality issues for this study in terms of validity, reliability, generalisability and ethical concerns.

The timeline for the research is given as an appendix (Appendix IV).

5.2 The trials

As a novice in phenomenography, I conducted some trial (mock) interviews with several student friends even before the pilot studies because firstly, I considered that I could not become totally familiar with the principles of phenomenographic interviews merely by conducting some small scale pilot interviews. Ashworth and Lucas (2000, p.303) claim that “the conduct of a phenomenographic interview places heavy demands on the interviewer and requires the gradual development of interviewing skills”. Secondly, I believed that I could become acquainted with the interview schedule and consider improving it, if necessary. Each of the six interviews lasted between 45 and 90 minutes, and the participants were invited to talk about several aspects of their learning

experience, such as their understanding of the programme they studied, their personal understanding of learning, ways of learning, satisfactory and unsatisfactory learning experiences and assessments. All the interviewees were able to either describe their experience and understanding of learning in detail. The interview schedule was continually revised during the process, with new questions raised and some inappropriate ones deleted. The interviews were then transcribed and I attempted to analyse them following the principles of phenomenographic analysis.

These trial interviews proved to be very enlightening and the quality of the interviewing continued to improve. Not only did I gain some experience of aspects such as the importance of flexibility during an interview, but I also became more confident during the conversations. The interviewees' feedback and reflection delighted me; for example, some of them said that they could feel the questions becoming deeper and deeper and layers seemed to emerge. I was pleased to observe that these conversations had also enabled my friends to reflect on their learning experience. Moreover I found it was necessary and imperative to ask the interviewees to describe their learning experience by answering a number of contextual questions. Instead of going straightforwardly with the core question 'what do you mean by learning', I allowed the interviewees to recall and depict courses, teaching and materials surrounding their learning. I adopted this way of interviewing in my final interview and more details will be provided later.

I encountered multiple difficulties during the conversations; for example, one interviewee's answers were irrelevant to my questions. It was evident that she was unaware of this, since she just kept on talking and I had to listen out of respect. But I managed to pull her back to the theme of interview during a short break of the conversation. Some participants' statements were rather fragmented and full of examples, so I had to ask them to try to summarise or theorise them. One interviewee described a great many theories in his area of interest, but failed to provide his own perceptions and reflection; furthermore, he became a little worried and puzzled when I asked him to do so. These different circumstances challenged my

interview skills to bring them back to the issue in question in order to elicit their conceptualisations and facilitate their reflection of certain aspects of learning.

The interviews with my student friends were merely trials to familiarise myself with interviews of phenomenographic features. The characteristics of the sample did not match the study because firstly, almost all the interviewees were postgraduates, while the formal study was designed to investigate undergraduates. Secondly, all the interviewees were studying education-related subjects, whereas my ultimate aim was to investigate business students. These limitations made it necessary to conduct pilot interviews.

5.3 Pilot study

This was the first time I had conducted a phenomenographic study utilising semi-structured interviews. It is fairly important for novice phenomenographers to conduct pilot interviews to examine and refine their interview skills (Åkerlind, 2005b); also, the limitations and lessons drawn from the trials made a pilot study essential. According to Bowden (2005, p.19), the pilot interviews should be undertaken with people “similar to the intended interview sample”, following which I selected a group of business English students. Although it was not a CFCRS programme, these students’ courses were hosted by English-speaking lecturers, and they were all in their second or third year of study. Thanks to my friend, I was able to conduct the pilot study at a university in a city in southern China.

Only five students participated in the pilot interviews and they were invited to talk about their experience of the course and learning in their university, an environment with which they were familiar. A few key interview questions had been prepared to examine their thoughts and experience about learning. Indeed, the questions for interviews should be kept as open-ended as possible to allow participants to choose

the dimension they intend to answer. Marton (1986, p.42) argues that “[t]he dimensions they choose are an important source of data because they reveal an aspect of the individual's relevance structure”.

All the conversations lasted for 25 to 40 minutes, much shorter than the trials. The transcript of the trials had proved that tedious conversations (for example, an interview that continued for about 90 minutes) resulted in a massive workload for me, mainly because of irrelevant information; thus, it was considered to be better to remain focused and produce efficient results.

Although the data collected from the pilot interviews was not used as a section of the formal research (Bowden, 2005), these interviews proved to be very fruitful. The conversations enabled me to polish my interview skills, and I was also alerted that I should not discuss or even argue with interviewees on certain issues, as advised by Bowden (2005). I also learned how and when to ask follow-up questions, which was the key to generating quality and in-depth data. As Åkerlind (2005b, p.65) states “the follow-up prompts in a phenomenographic interview are often more important in eliciting underlying meaning than the primary questions”.

Furthermore, I found that it was very important to make notes during the interviews for three reasons. First, note-taking helped me pick up the key points expressed by the interviewees; for example, some students provided long answers to certain interview questions. Under this circumstance it seemed inappropriate to interrupt because the continuity of interviewee's response should be assured. It was a good and feasible practice to make notes and ask interviewees to explain later. Second, despite the conversations being conducted in Chinese, some students spoke so fast that I could not follow them. Thus, I had to make a record of the key points and ask them to clarify later on. Third, the notes made during the conversations might also be helpful when analysing the transcripts.

I learned from two mistakes. Some students found certain questions embarrassing and difficult to answer and one of them even asked me to give an example and I agreed. However, I then realised that this was a totally wrong approach, since it restricted the participants' free thinking and independent reflection; in other words, it left no room for variations, which is the purpose of a phenomenographic study. I was so keen to help the young students out in the pilot interviews when they struggled to answer some tricky questions that I completely forgot that the essence of a phenomenographic interview is 'non-directive' and the researcher must not lead the interview under any circumstances.

The second mistake was making the interviews excessively dense. I was totally exhausted after interviewing all five students in one afternoon, and this warned me that it was counter-productive to interview too many students in a few hours. The interviewer would probably become mentally tired and unable to focus on the interviewees' responses. In addition, follow-up or probing questions would be impossible, since these questions depended on the interviewer remaining sufficiently alert to understand what someone said and pinpointing the problem in a timely manner. I felt that, near the end of the pilot interviews, I could only repeat the questions on the scheduled list because of my fatigue. Thus, I tried to interview two students in one day at the most in the formal interviews, and it was proved to be a wise decision.

5.4 Initial data analysis

I began to analyse the data in the trials with 6 Chinese students. I firstly listened to the recordings and transcribed them carefully in Chinese. Long pauses, expressions such as smiles and body language were clearly indicated by making marks like '...', 'pause' and 'laugh'. The transcription was time-consuming work; for example, I had to spend half an hour transcribing a ten-minute conversation. Furthermore according to the principle of phenomenographic analysis, interviews should be transcribed verbatim (Åkerlind et al.,

2005) and the researcher is not allowed to judge at this stage whether the information is relevant or irrelevant. All six interviewees' transcripts were printed for data analysis, since it would have been difficult to analyse them on the laptop. The aim of the first reading was to become familiar with the transcripts. Reading them through was the only task this time, and I discovered that reading while listening to the recordings could deepen my impression of the transcripts, although this was a lengthy process.

Reading and studying was important for the subsequent work. The transcripts were read both individually and collectively to identify similarities and differences. I agreed with Reed (2006) that it was truly difficult to describe this process in a very sequential and structured way. It was a constant round of selection, interpretation, categorisation and comparison until I considered that there was no need for further analysis. I found the hierarchy among different categories difficult to construct in that the boundary lines separating them were sometimes subtle; as a result, I could not be sure if the level of one category would be higher or lower than that of others. Nevertheless, a preliminary outcome space was finalised, which was composed of six logically-structured categories of description.

I acquired first-hand experience from this initial phenomenographic data analysis of the trials. In addition to Bowden's (2005) suggestion that it is necessary to conduct pilot interviews, I believe that it is equally important to make an initial analysis. New researchers may be able to acquire knowledge of what the process looks like and the key points that should be borne in mind when analysing the data.

Having described the trials and pilot study, I will now begin to provide details of the formal data collection and analysis.

5.5 Data collection

5.5.1 Sampling

The academic year of most universities in the UK consists of three terms; in contrast, Chinese HEIs have only two semesters, the first of which runs from September to January and the second from March to July. I had to end my investigation before July because it would have been difficult to approach students during the holidays.

As for the size of the sample, Trigwell (2000) contends that 15 to 20 participants is a reasonable number for a phenomenographic study. Marton (1988) claims that a group consisting of 15 to 30 participants may be enough. Similarly, Bowden (2005, p.17) proposes a number between 20 and 30;

[...] you need to interview enough people to ensure sufficient variation in ways of seeing, but not so many that make it difficult to manage the data. Two people would be too few and two hundred would be too many. In practice, most phenomenographers find that between 20 and 30 subjects meet the two criteria. You have sufficient variation and you can manage the data.

It can be concluded, therefore, that the minimum number of a sample in phenomenographic studies might be about 15 and the maximum could be 30. For this study, a total of 23 IET programme students were invited to depict and reflect on their learning experiences within the conversations. According to Bowden (2005), this is a reasonable number from which to derive various experiences of learning. In addition, since most of the conversations lasted for around 30 to 50 minutes, the data would not be difficult to manage.

When selecting the participants for the study, I abandoned random sampling in favour

of a purposive or purposeful sampling technique. Although a limited number of participants are required for a phenomenographic study, this does not mean that the researcher could choose them at will. Rather, they should be chosen purposefully, according to Patton (2002, p.230);

The logic and power of purposeful sampling lie in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry, thus the term purposeful sampling. Studying information-rich cases yields insights and in-depth understanding rather than empirical generalisation.

The objective of phenomenographic research lies in uncovering the different ways of experiencing a phenomenon as variously as possible, therefore, the selection of the participants should adhere to this principle. Maximum variation, the interest of which lies in heterogeneity or diversity, is a crucial sampling method (Green, 2005). As a strategy of purposive sampling, it is often employed by researchers who intend to study the way in which a phenomenon is experienced by different individuals (Patton, 2002). Therefore, when choosing a limited number of participants, I needed to carefully consider their diversity. According to Åkerlind et al. (2005, p.79), “[i]n phenomenography, small sample sizes with maximum variation sampling, that is, the selection of a research sample with a wide range of variation across key indicators (such as age, gender, experience, discipline areas and so on), is traditional”.

The selection of participants for this study was based on several criteria, the first of which was that learners should be currently studying in the CFCRS programme. Secondly, they should have experience of courses delivered by Australian lecturers. Thirdly, the interviewees should cover all four grades, although only a small number would be chosen. Fourthly, the types of enrolment (state-planned and non-state-planned students) were also considered. Finally, gender was also an issue that needed to be

considered. Ideally the numbers of male and female subjects should be equal, but I found that this was very difficult to achieve because of the limited number of male volunteers.

A total of 7 male and 16 female students participated in the interviews, and the cohort consisted of two different types: state-planned (n=12) and non-state-planned (n=11). The student group covered all four grades, with 8 first-year students, 11 second-year students, 2 third-year and 2 fourth-year students. Although I attempted to invite as many third-year and fourth-year students as possible and tried to contact them by every means, in practice it was difficult to approach them.

Every interviewee was informed of the general purpose of the research and their rights during the conversation. A student participation sheet that asked for their personal information, such as age, gender, year of study, major curricula and types of enrolment (state-planned or non-state-planned) was completed by every participant. Basic information of all the interviewees is provided in the table below.

Student Number	Gender	Year of study	Type of enrolment	Age
S1	Female	1	Non-state-planned	19
S2	Female	1	Non-state-planned	20
S3	Male	1	Non-state-planned	19
S4	Male	1	Non-state-planned	19
S5	Female	1	Non-state-planned	19
S6	Male	1	Non-state-planned	19
S7	Female	1	Non-state-planned	20
S8	Female	2	State-planned	22
S9	Female	2	State-planned	20
S10	Female	4	State-planned	22
S11	Female	2	State-planned	20
S12	Male	1	Non-state-planned	19
S13	Female	3	State-planned	21
S14	Female	2	Non-state-planned	21
S15	Female	1	State-planned	19
S16	Male	3	State-planned	22
S17	Female	2	State-planned	21
S18	Female	2	State-planned	21
S19	Female	2	Non-state-planned	22
S20	Male	2	State-planned	20
S21	Female	2	Non-state-planned	21
S22	Female	4	State-planned	23
S23	Male	2	Non-state-planned	20

Table 5.1 Characteristics of IET interviewees in the CFCRS programme

5.5.2 Phenomenographic semi-structured interviews

Despite there being numerous data collection techniques, such as open-ended questions or written responses (Bruce, 1996; Tight, 2016), observation (Patrick, 2000) and group interviews, Marton (1986, p.42), the founder of the phenomenographic approach, believes that “interviewing has been the primary method of phenomenographic data collection”. Collier-Reed and Ingerman (2013, p.248) further deem that

The typical phenomenographic interview is of a semi-structured nature, with only a few key questions predetermined. This is in contrast to the archetypal qualitative interview, where a detailed framework of the

interview is developed beforehand. That is not to say that the phenomenographic interview is without focus. The object of study is held central to the interviewer's focus at all times and guides the interview situation. The majority of the interview is thus centred around following up and exploring different aspects of the interviewee's reflection on the theme as thoroughly as possible.

Semi-structured interviews can be both open, because "while a structure might be planned in advance, to approach the phenomenon in question from a various interesting perspectives, the interviewer is prepared to follow unexpected lines of reasoning that can lead to fruitful new reflections" (Booth, 1997, p.138), and deep, since "particular lines of discussion are followed until they are exhausted and the two parties have come to a mutual understanding" (Booth, 1997, p.138).

The openness of phenomenographic interviews means that although a set of questions should be prepared before undertaking the interviews, those questions can only be viewed as a guide rather than a constraint during conversations. One of the basic tenets of phenomenographic interview lies in "allowing maximum freedom for the research participant to describe their experience" (Ashworth & Lucas, 2000, p. 300). Accordingly the interview questions should be as general as possible rather than excessively specific, to facilitate the collection of abundant data. Some of my interviewees considered that the questions were so general that they had no idea where to begin, and in this situation, I allowed them to choose their own topic of conversation without restriction as long as it related to learning.

The depth of phenomenographic interviews lies in the fact that interviewers often bring participants to a meta-awareness level to ponder and rethink the phenomenon in question (Marton & Booth, 1997). The interviewees should be encouraged to fully express and reflect on the phenomenon of interest so that their sayings and actions are theirs alone, with the minimum of intervention by the interviewer (Entwistle, 1997b).

Phenomenographic interviews generally contain the following three categories of questions;

(1) Neutral questions aimed at getting the interviewee to say more.

Example: Can you tell me more about that? Could you explain that again using different words? Why did you say that?

(2) Specific questions that ask for more information about issues raised by the interviewee earlier in the interview. Example: You have talked about X and also about Y, but what do X and Y mean? Why did you talk about Y in that way?

(3) Specific questions that invite reflection by the interviewee about things they have said. Example: You said A, and then you said B; how do those two perspectives relate to each other? (Bowden, 2005, p.18)

When reviewing the literature, I found that many researchers (e.g. Åkerlind, 2005b; Bowden, 1996, 2005; Sin, 2010) had developed interview techniques for phenomenographic studies since this methodology was first introduced, and I put some of these techniques into my own practice. A number of the key issues of phenomenographic interviews combined with my personal practice are illustrated below. Most of the techniques were made in response to Säljö's (1997) query that to what extent could the interview data represent people's ways of experiencing or conceptions. It is necessary, therefore, to examine the relationship between language and conception before illustrating the techniques.

5.5.2.1 Exploring conceptions through language

To reveal conceptions by means of language may sometimes seem to be dubious in phenomenography. Säljö (1997) proposes that the interview data actually represents a

way of talking but not a way of experiencing, and what researchers analyse is the discourse rather than the conception. Admittedly, there might be a small number of students who are unable to describe their conceptions. As Säljö (1997) states, some interviewees could treat the conversation as a communicative obligation to be fulfilled, or they might provide answers in a way that enables them to save face when encountering tricky and abstract questions. Under such circumstances, it is reasonable to suppose that the students' "utterances signify something else" (Säljö, 1997, p.177) rather than a conception. The argument is insightful and phenomenographic researchers should be alert.

However, the close relationship between conception and language, more specifically that conception is expressed by language while language shapes conception, could not be denied. Svensson (1997, p.166) points out that "conceptions may be expressed in different forms of action but they are most accessible through language". Anderberg (2000, p.92) contends that "[c]onceptions are accessible through different symbols" and it is language that is "the most common kind of symbol in educational settings". Marton et al. (2004, p.25) state that "language plays a central role in the construal of experience, that is it does not imply represent experience, as is widely perceived, but more importantly, it constitutes experience". If researchers distrust interviewees and treat their utterances as worthless, there would be no reason for collecting spoken data for phenomenographic research (Roisko, 2007). Furthermore, Elizabeth (2009) argues that even if the actual experience can be obtained, it will still be dependent on the researcher's personal observation. The interviewee's descriptions would be more trustworthy than the researcher's subjective understanding of the direct experience.

Every effort has been made to ensure that students express their learning conceptions as faithfully as possible. Various interview strategies have been employed in this study to minimise Säljö's (1997) concerns. The interview questions were kept as open as possible to give the interviewees the maximum freedom and "do not lead participants to adopt a specific discourse" (Irvin, 2006, p.102). The interviewer's intervention should

be controlled to a minimum degree. The follow-up questions were frequently and regularly used to allow students to further clarify as well as exemplify their language and meaning (Barnard et al., 1999). I would also allow the students to jump the difficult question and come back later to eliminate responses provided merely out of avoiding embarrassment. I attempted to create a comfortable and friendly environment to relax the participants, and empathy and engagement (Ashworth & Lucas, 2000) was executed to give the interviewees sufficient opportunity to ponder their learning experience and all the related aspects (McKenzie, 2003). More detail of these strategies will be provided below.

Additionally, Säljö's (1997) concerns will be further addressed in the data analysis stage (see section 5.6.3.4).

5.5.2.2 Starting in an indirect way

The traditional way of using phenomenography to research learning is often by simply asking a great many straightforward questions, such as 'what do you mean by learning?' and 'how do you know when you have learned something?'. Further insights can be gained by asking follow-up questions, for example, asking interviewees to expand or clarify their answers and provide an example.

However, Bowden (2005) claims that there is another way, which is to ask the participants to depict a recent experience related to the issue of interest. Bowden (2005) refers to research by Green (2005) as an example, when the interviewer asked the interviewees to describe their recent successful and less successful experience of doing research in detail in order to explore their conceptions of research. Green (2005, pp.17-18) explains the reason for adopting this method, as follows;

This was not an arbitrary decision; rather it is based on experience. When

'what is X?' questions are asked in such phenomenographic interviews, the outcomes tend to be less varied and they more or less reflect the standard, espoused theories available in the literature. On the other hand, when people are asked to describe their own direct experiences, their immersion in that detail often reveals a much greater variation across the interviews in ways of seeing than with the more narrowing 'what is X?' approach.

There is a second reason as well. It is easier to get people to describe something they've experienced than to get them to philosophise about an issue to which they might not have given much thought before. So you get a much deeper insight into how the interviewees actually see the concept in practice as well as having a better opportunity to explore and probe in a comfortable and non-threatening way – given that you are asking for more information about their actual experiences rather than appearing to be 'testing' their theoretical knowledge.

Similarly, Marton et al. (1993, p.281) posed reflective questions in a more natural way; "if the students had been talking about what they felt they had learned from a particular part of a course, the interviewer would go on to ask, 'When you say learning, what exactly do you mean by that word?'".

Bowden's (2005) advice and Green's (2005) practice is insightful for this study. Therefore, before beginning the interview and to pave the way for the subsequent conversation, I prepared some 'warm-up' or contextual questions (Åkerlind, 2005c), such as 'Why did you choose this CFCS programme?' and 'How do you understand the programme/subject you have chosen?' rather than directly and abruptly asking the interviewee to describe their experience and understanding of learning. I also encouraged the students to describe, recollect, analyse and reflect on their course experience with the intention of supplementing the direct questions (learning) with indirect ones (teaching). During the interviews, I found that the students were better

able to analyse their learning by talking about the experience of certain courses they had taken. More specifically, they were asked about some satisfactory and less satisfactory courses they had ever taken and why, and the teaching methods or classroom activities they liked and did not like. The basic assumption here was that teaching and learning are closely related, and that learning can be researched via teaching. Although this may have played an unexpectedly positive role in the conversation, more emphasis was placed on exploring the learning experience due to the aim of the study.

Furthermore, I found in my practice that starting the conversation in an indirect way helped me to create a relaxed atmosphere to a great extent. I often began each conversation with a contextual question, such as 'why did you choose the CFCRS programme?' to explore the students' motivation for choosing the CFCRS programme. These interviewees had no trouble describing how they entered this university based on their experience and analysing the reasons for selecting the CFCRS programme. In case some of the young people initially appeared to be shy and nervous, I commenced the conversation by talking about their personal hobbies before the formal interview questions. This way of starting the interview proved to be very effective in dispelling their anxiety.

5.5.2.3 Minimising the researcher's intervention

Since the aim of a phenomenographic study is to investigate the participants' experience of a phenomenon, it is essential for researchers to 'bracket' their own subjective insights, existing theories, and previous experience. The nature of a phenomenographic interview is 'non-directive' in order to explore the phenomenon in question from a second-order perspective. This is essential when both collecting and analysing the data. In this sense, interviewers must not lead the interview in their favour. As Dahlgren (2005, p.28) contends, interviewers should "avoid giving any clues about

the desired direction which the process should lead". However, it is imperative that the phenomenon under investigation much be "held central to the interviewer's focus at all times" (Reed, 2006, p.5).

Furthermore, Sin (2010, pp.313-314) proposes the following four ways that were used to minimise the interviewer's personal influence as much as possible;

- Attention was given to the expressions used by interviewees and assumptions were not made about their meanings even if they seemed obvious but to clarify their intended meanings by asking follow-up questions.
- The researcher avoided introducing new terms into the conversation and refrained from correcting the interviewee with more accurate expressions.
- After asking a question, the researcher gave the interviewee the time and space to reflect and talk. The researcher consciously avoided showing facial expression of agreement or disagreement at the interviewees' responses but remained present and listened attentively and empathically.
- The researcher also avoided asking leading questions.

The above suggestions proved to be practical and effective in my experience. The participants were allowed to take a leading position during the conversations, and I acted as a listener who occasionally asked them to explain their meaning. The same thing might be explained differently among various students with distinctive intentions. I deliberately did not correct some interviewees' mistakes because I perceived that there was no absolute right or wrong answer and I believed that the students were able to explain their position. I replied to them with 'mmm' or nodded to show that I thought their expression made sense and encouraged them to say more. The apparently illogical or wrong statements, as Marton and Booth (1997) see them, have the potential to provide an insight into the learner's way of experiencing learning.

5.5.2.4 Follow-up questions

Åkerlind (2005c, p.106) contends that the unstructured follow-up questions in phenomenographic interviews

[...] were used to encourage further elaboration of the topic or to check the meaning that interviewees' associated with key words or phrases that they used. These questions commonly took the form of, 'Could you tell me a bit more about that?', 'What do you mean by that?', 'Could you give me an example?', 'Why did you do it that way?', 'What were you hoping to achieve?', 'Why was that important to you?'

Follow-up questions are important for acquiring some insightful opinions, ideas and thoughts. Their function is even more significant than that of the main questions in terms of eliciting potential meanings (Åkerlind, 2005b). Given their importance, I had to pose such questions in an appropriate way and at an appropriate time. I also had to remember to keep an open mind and pay close attention to every participant's response. In practice, I found that Åkerlind's (2005c, p.108) account of her approaches to raise follow-up questions was very helpful;

My approach to probing typically involved selecting the word or phrase in their comments that seemed most significant or meaning-laden for them, and asking them to expand on that. Another way in which I sought clarification of meaning was by asking them to compare or integrate something they had expressed earlier with what they had recently said, e.g., 'How does this fit in with [...] that you mentioned earlier?' In these cases, the importance of ensuring that I had fully explored what had already been said by the interviewee took priority over the possibility of

biasing what they were going to say in the rest of the interview.

Åkerlind's (2005c) first way proved to be highly practical and effective in eliciting the interviewees' underlying intentions. However, since the key to this approach is locating some seemingly meaning-laden statements, it might not be an easy task for the interviewer and could influence the quality of the data, which is why I practised many times by means of the trials and the pilot interviews. I believe that experienced interviewers could somehow become sensitive to their informants' responses and thus produce quality follow-up probing questions at the appropriate times. I also used the second approach, but less frequently, since I thought it would be even more demanding because it required the researcher to have a good memory and the ability to relate different sections of the conversation.

Åkerlind (2005c) further suggests that, if the participants are found to begin to repeat what they have said or are unable to answer certain questions at all, it could imply that they have said all they have to say and are unable to offer more. At this point, the probing should stop. This often happened with young undergraduates in my interviews, and I realised that I had to stop and maintain a comfortable environment to continue the conversation. When analysing the transcripts, I perceived that most of the students had been able to express themselves sufficiently and clearly by the end of the investigation.

5.5.2.5 Creating a comfortable environment

Phenomenographic interviews contain a number of 'what' and 'why' questions, and the 'what' questions may be easier to answer than the 'why'; nevertheless, the 'why' questions play an essential role, because "[p]articipants' comments on why they engaged in described behaviour, or why they thought particular behaviour and opinions were important, were more significant in the search for meaning in the transcripts than

were simple descriptions of behaviour and opinions” (Åkerlind, 2005c, p.114). Given the importance of these questions, I found it was really difficult for the participants to respond to them. They often needed a long time to think about them, or they replied, ‘I do not know’. The continuous probing nature makes the phenomenographic interview more challenging and intimidating than other forms of interviews (Reed, 2006). Similarly, Åkerlind (2005c, p.115) claims that phenomenographic conversations are essentially uncomfortable and reflective;

Being asked to explain why they thought something was important or why they did things in a certain way often required self-reflection and analysis at a level that was effortful and potentially tiring. Furthermore, sometimes interviewees could not express an explanation of the ‘why’ at a level that they felt satisfied with, which was also uncomfortable for them.

Young students would be likely to treat the conversation as a challenge, and if their self-confidence was low, they would be reluctant to provide a frank and in-depth answer. In this case, a quiet and comfortable external environment would help them to relax and promote genuine communication to a certain extent (Åkerlind, 2005b). The interviewees would be more likely to express, explain and reflect in a cosy and comfortable atmosphere.

Therefore, I made every effort to create a cosy atmosphere in all aspects. Firstly, since most of the IET students were unable to speak fluent English, Mandarin Chinese was used as a common language for the communication. Their limited linguistic ability may have made the participants very anxious and nervous while telling their stories in a language with which they were not well acquainted, and this could have created an awkward atmosphere, contrary to the comfortable environment needed for a phenomenographic interview. Instead, the students were happy to describe their experience in their native Chinese, since they could adequately express themselves very clearly, thus providing data that was both descriptive and rich. Therefore, all the

interviewees in the CFCRS programme were permitted to use their mother tongue, Mandarin Chinese.

Secondly, I spent a great deal of time carefully considering and choosing the location for the interviews. I could not choose a location in my own neighbourhood because this would have been inconvenient for the participants, and I was reluctant to select a classroom in their university for fear they might psychologically associate the conversation with an oral examination. In fact, it was hard to find anywhere on campus because it was too small, and since many students share one dormitory in Chinese universities, this was also not an option. Finally I found a public place to conduct the interviews in the form of a quiet and warm café, with an atmosphere that was very conducive for a conversation. Drinks were prepared before the arrival of each interviewee.

Thirdly, I attempted to handle the interview questions that were hard to answer appropriately, as failing to do this could cause embarrassment for both interviewer and interviewee. I adopted Åkerlind's (2005c) solution during the interview process that leaving the difficult question unanswered to go on with others and then returning to it to see if the interviewee had any new thoughts. The purpose here was to avoid any tension caused by participants' inability to make a response. If the interviewees still found it difficult to answer, I asked them to give an example from their daily learning. However, the focus here was not the example itself; as Åkerlind (2005b, p.66) argues that

[what] is important in a phenomenographic interview is not the examples of practice per se, but the way that the interviewee thinks about those examples, i.e., what they think the examples illustrate about the phenomenon being investigated.

5.6 Data analysis

The analysis of the collected data is addressed in this section. The central concern of a qualitative analysis is to assign meaning, structure and order to a set of data (Anfara & Brown, 2001). Although a number of researchers (Dahlgren & Fallsberg, 1991; Khan, 2014; Marton, 1986; Sjöström & Dahlgren, 2002) have proposed a general analytical process, the data in this study will be analysed in line with the selected referential/structural framework presented in Chapter 4, which I chose as the most suitable based on comparing several analytical frameworks. The procedure will be explained later and the numerous issues in a phenomenographic data analysis will be expounded and clarified in the final section.

5.6.1 General analytical procedure

The central concern of a typical phenomenographic study is to identify the qualitatively different ways in which the participants experience, understand and conceptualise a phenomenon. In this sense, data analysis is a process from which such categories of description can be derived. Marton (1986, pp.42-43) explains the general process from the finishing of the transcription to the formation of categories of description;

The first phase of the analysis is a kind of selection procedure based on criteria of relevance. Utterances found to be of interest for the question being investigated [...] are selected and marked. [...] The phenomenon in question is narrowed down to and interpreted in terms of selected quotes from all the interviews. [...] The selected quotes make up the data pool which forms the basis for the next and crucial step in the analysis. The researcher's attention has now shifted from the individual subjects [...] to the meaning embedded the quotes themselves. The boundaries separating individuals are abandoned and interest is focused on the "pool

of meanings” discovered in the data. [...] A step-by-step differentiation is made within the pool of meanings. As a result of the interpretive work, utterances are brought together into categories on the basis of their similarities. Categories are differentiated from one another in terms of their differences. [...] quotes are sorted into piles, borderline cases are examined, and eventually the criterion attributes for each group are made explicit. In this way, the groups of quotes are arranged and rearranged, are narrowed into categories, and finally are defined in terms of core meanings, on the one hand, and borderline cases on the other.

Booth (1993, p.188) also depicts the analytical process of the collected data;

The interviews are transcribed and the researchers immerse themselves in them, reading them carefully, focussing on different themes of interest, being aware of all their data at the same time as they look at a single statement. The researchers look for similarities and differences in the subjects’ statements, and their understanding of the statements hovers in a state of uncertainty, looking for further implications of the original interview context and the context of the totality of interviews. One differentiates between the first-order perspective, from which the researcher takes a subject’s statement and measures it against some predetermined standard, and the second-order perspective, from which the researcher sees statements as reflecting the subject’s own understanding of the phenomenon in question. [...] The analysis process is essentially dialectical - the statement, the individual interview, the totality of interviews, all lend meaning to one another. The interviews have to be seen simultaneously as a whole, as taking up individual themes in certain sections, and as being permeated with references to the totality of themes of interest.

Several researchers (Dahlgren & Fallsberg, 1991; Khan, 2014; Sjöström & Dahlgren, 2002) have proposed the following seven steps to analyse the data in an attempt to structure the process and facilitate manipulation:

Step 1. Familiarisation: the researcher is introduced to the empirical data by reading through the transcripts. It may also include correcting errors in the transcripts.

Step 2. Compilation: compile students' answers to certain questions and identify the most important elements in answers.

Step 3. Condensation or reduction: select quotes which seem to be relevant and meaningful for the study and remove the most redundant, irrelevant data.

Step 4. Preliminary grouping: categorise similar answers into the same group.

Step 5. Preliminary comparison of categories: establish borders between the categories. The revision of the preliminary groups may also happen.

Step 6. Naming the categories: give each category certain names to highlight their essence.

Step 7. Final outcome space: a description of the unique character of every category, and a description of resemblances between categories.

Marton (1986) claims that, on the one hand, while this is a process of discovering different ways of experiencing a phenomenon, there is no 'algorithm' to do it. This situation has not been changed for more than two decades, as Yates et al. (2012, p.103) in a more recent study contend that "[t]here is no single process or technique prescribed for the analysis of phenomenographic data". On the other hand, it is clear that this process is often highly lengthy and repetitive. Marton et al. (1993, p.282) deem that it should be "of an iterative and genuinely interpretive nature, guided by what we may call 'the hermeneutics of phenomenography'", and Åkerlind (2005d) depicts a similar meaning, stating that the analytical process is highly repetitive and comparative.

Even the definitions of the categories should be examined and renamed iteratively. Due to the essence of this analysis, Reed (2006, p.9) claims that not many researchers are likely to “spend time making their process explicit as it is not simply a structured series of steps that can be easily described”.

Evidently there is no universal solution to analyse the data collected for phenomenographic studies, since the procedures adopted by some researchers may be different from those of others. Unfortunately, it seems that these researchers have seldom considered the role of certain analytical tools in analysing data. Given that the framework developed from the anatomy of awareness could improve the research of conceptions (Harris, 2011), the following section will detail the data analysis in relation to the referential/structural framework.

5.6.2 Analytical procedure for this study

5.6.2.1 Preparatory Work – formulating the ‘pool of meanings’

When analysing the data, I always kept the research question in mind and explored the different ways in which IET students experienced their learning in the CFCRS programme. I read the transcripts several times until I felt that I was adequately familiar with them. I then began to search for learning-related statements with an open mind and labelled them initially. However, the problem was how to judge whether they were relevant or irrelevant. Sjöström and Dahlgren (2002) propose three indicators for evaluating the importance of elements in answers. The first is frequency, implying that researchers should pay attention to those statements appeared frequently. Additionally the important elements often can be found in specific positions, for example, the introductory parts. Thus position is another indicator. Sometimes comparisons might be made by interviewees to explicitly express that some aspects are more significant than others, which is named by Sjöström and Dahlgren (2002) as

‘pregnancy’. This is the third indicator that can be used to evaluate the importance of elements.

Firstly I paid attention to the words and phrases that appeared often in the transcripts and marked them when necessary. This was a repetitive process requiring reading and re-reading, since it was not easy to discover the words and phrases that frequently appeared in one reading. As an illustration, a number of key words and their frequency are given below (Table 5. 2).

Words	Learning	Knowing	English	Knowledge	Memorising	Applying	Understanding	Perspective	Change	Maturity	Idea	Life
Frequency	450	131	185	232	182	323	180	13	23	14	47	42

Table 5.2 Frequency of key words

Secondly, particular attention was given to the answers in response to certain important questions with particular phenomenographic characteristics, such as ‘what do you mean by learning?’, ‘how do you go about learning?’ and ‘how do you know when you have learned something?’. S3’s response to such questions is an example.

Interviewer: How do you define learning?

Interviewee: It’s improving yourself. While you are learning you understand something, and this influences your thoughts to some extent and may be applied to some aspects of your future life.

I was also aware that meaningful information might have been uncovered in some responses to the follow-up questions (Åkerlind, 2005b), although they were very scattered and fragmented.

As stated above, learning experience-related insights may also be generated in an

indirect way. Therefore, the interviews also contained some course experience-related questions, such as 'what do you think is the most impressive course you have ever taken?' and 'what do you think about the methods of teaching?'. I believe that, in answering such questions, students might be able to express their conceptions of learning very naturally and unconsciously, although it may not be in a very straightforward way. S22's description of the course that she found to be most impressive illustrates the connection between various curricula.

I like one course I've taken. I've been taught some trade terms and how to sign a contract. Later when I learned some other courses such as international business law, (I found) some of the knowledge I've already learned in the previous course I like. [...] It easy to link them together.

The name for the course S22 liked most is *Import and Export Practice*. In describing the course experience, she provided a real example of how to make connections between different courses, which leads to identification of a specific conception of learning.

Finally, I found that some participants compared and assessed certain aspects and claimed that they were more or less significant than others. These comments were easy to discover and truly valuable. For example, some students compared memorising with understanding:

After all, understanding is not everything; you have to remember some things. S11

Both memorisation and understanding are methods ... Good memorisation may be better than understanding. S16

Through the comparison, it is evident that the participants were in favour of remembering rather than comprehending, and they believed in the benefit of

memorisation.

All the interview transcripts were intensively read and re-read until I thought there was no relevant information left to discover. Then all the statements and excerpts were typed into my laptop, and a 'pool of meanings' began to emerge (Marton, 1986).

5.6.2.2 Identifying the referential aspect

The de-contextualised quotes and excerpts were identified and placed together, thereby forming a 'pool of meanings' which potentially included the various ways these students conceptualised their learning. I then shifted my attention from the individual transcripts to the pool, and since all the transcripts were in Chinese, I had no problem in understanding them.

The central task in this step was to discover the referential or meaning aspect, which referred to the qualitatively different meanings or conceptualisation of learning of the students in the programme. Their quotes were compared and differentiated within the 'pool of meaning', and since I frequently had to re-contextualise some vague de-contextualised statements, the original transcripts were still an important source of consultation. As Svensson (1997) observes, this is not an easy process due to its complexity. Since it is quite possible to express very similar meanings in linguistically different ways and different experiences may also be expressed using similar language, it is imperative for the researcher to focus on and interpret the meanings rather than the superficial linguistic expressions. In practice, my interpretations and thoughts were orientated in two directions. On the one hand, because "similar expressions may have different meanings for different interviewees" (McKenzie, 2003, p.87) I had to pay close attention to the quotes, even if they were apparently similar, and considered if they expressed distinctive meanings. For example, two participants referred to the word 'digestion', yet their underlying meanings are basically different.

Interviewer: What do you think is digestion?

S5: It's to let that knowledge enter into the head and then memorise it.

Interviewer: In your opinion, to what extent can you call it digestion?

S5: For example, you put everything aside before the final exams. You only focus on the materials to be recalled in preparing for assessment situations and that is digestion.

Interviewer: Can you give me an example?

S5: It's like memorising the multiplication table. You learn it by heart and that is digestion.

Interviewer: What is digestion? To what extent can you call it digestion?

S9: The lecturers usually make some slides before the course. And I think digestion means I can understand them. It's OK to understand them.

Interviewer: What is understanding?

S9: Take a graph for example, (I should know) what it means if it goes up or down and what the axes represent.

According to the excerpts, it is obvious that S5 used digestion to denote keeping something firmly in mind or learning by heart, while S9 deemed that digestion meant making sense of something.

On the other hand, when encountering different words and expressions, I thought about them further to determine if they represented similar meanings. For instance, a number of participants said that:

(Learning) improves my mentality to a large extent and I stop being immature. S4

I used to be very impatient in the past, but I have increasingly become calm. S16

I'm becoming more mature (laugh). S19

The words they used such as 'improve' and 'become' essentially relate to their personal change as a result of learning. That is, the learner as a person is now different from what he/she used to be. Although the words and expressions may vary, the underlying meaning remain relatively stable.

The identification of the referential aspect requires researchers to bracket their own opinions, because one notable principle of the phenomenographic approach is that it takes a second-order perspective. Therefore, I endeavoured to bracket existing theories and research findings, personal opinions, authorised concepts (Wood, 1996) and previous experience throughout the analytical process by attempting to be empathic, as Ashworth and Lucas (2000) suggest. Empathy requires researchers to relocate themselves into the participants' world, which corresponds to the claim of second-order perspective phenomenography assumes and may assist bracketing. Even if students express some apparently wrong opinions, they should still be viewed by the researcher as being of "immense interest" (Ashworth & Lucas, 2000, p.299) to explore some issues further.

5.6.2.3 Identifying the structural aspect (external and internal horizons)

The structural aspect is "the combination of features discerned and focused upon by the subject" (Marton & Pong, 2005, p.336). The aim for this procedure is to determine which elements of understanding learning are the focus of each category and which remain in the background. In terms of the structure of awareness, this is an attempt to determine what is in the foreground of students' awareness and what is in the background. This is a process of revealing IET students' layered structure of awareness as they experience learning.

This process was running parallel to the identification of the referential aspect, because the structural aspect and referential aspect are “intertwined in nature” (Marton & Pong, 2005, p.336), and “structure presupposes meaning and at the same time meaning presupposes structure” (Marton & Booth, 1997, p.87). The two aspects occur simultaneously when experiencing something.

Essentially, as the title of this section indicates, the central task for this step is to address the figure-ground relationship (Bowden & Marton, 2004) by discerning those aspects in the foreground on the one hand, and those receding to the background on the other. The aspects in the foreground constitute the internal horizon of the participants’ learning awareness, while those in the background constitute the external horizon. The identification of the external horizon answers the question, “How must the phenomenon be delimited from its context if this quote is to make sense?” (Cope, 2004, p.14), while the identification of the internal horizon is the response to the question, “What dimension(s) of variation must be discerned if the quote is to make sense?” (Cope, 2004, p.14).

The establishment of the internal horizon for each category is basically a process in which the researcher has to identify the participants’ focal awareness when experiencing a phenomenon. This involves not only discerning the component parts, but also the relationship between these parts and between the parts and the whole phenomenon (Cope, 2004). According to Irvin (2006, p.160), the focus for this step of analysis is on “identifying participants’ awareness of things they consider integral to the phenomenon’s meaning”. Thus, it is evident that there may be a close relationship between the referential aspect of a category of description and the internal horizon. When analysing the data for the internal horizon, I often referred to the meaning aspect of a description.

For example, S12 described their understanding of learning:

S12: I think it means breaking whole knowledge into pieces and then absorbing them.

Interviewer: What is absorbing?

S12: It is remembering for a long time. I like to memorise it once and again.

S12

It is evident that the student emphasised the memorisation aspect of learning, and his utterance clearly captures some elements. The major component parts, which signify the learners' focal awareness and constitute the internal horizon, involve pieces of knowledge, memorising once and again, and remembering for a long time. These three parts represent the object, act and expected outcome or result of learning, which form a pattern of learning. Similar models can be identified in other categories. For instance, S8 said that she saw learning as:

studying something you didn't know about before. I knew nothing about politics and economics, but now I've learned some theories and what crises are all about. So I've really learned something. S8

The internal horizon for this category may likely include the object (something you didn't know about before), the act (studying) and the outcome (really learned). This participant held the learning conception of increasing new knowledge and she understood learning as obtaining new knowledge. She did not further explain the word learning, instead she used a similar word studying, which may represent an unreflective attitude on learning. The outcome or result she expected is knowing more than before.

The external horizon is the context in which the phenomenon sits, and it can either be concrete or abstract (Marton & Booth, 1997). Linder and Marshall (2003, p.274) argue that the importance of the context of experience should be noted, because "this may determine which aspects of a phenomenon are brought into focal awareness, and

which remain in the thematic field". As stated above, this notion has not been well defined. The boundary between the internal and external horizon is relatively clear in the example of a deer in the woods as referred to previously (Marton & Booth, 1997), and it is not difficult to confirm the physical external horizon. However, the experience of learning is a complex phenomenon that contains many fluid aspects rather than a purely physical circumstance or setting.

Despite the boundary between the two horizons, the identification of the external horizon should take into account the internal horizon. The establishment of external horizon was basically a process to determine the environment where all the elements within the internal horizon were located. In practice I was always attempting to answer the question 'In what context did this particular experience of learning is expressed?'

It was relatively straightforward to identify the external horizon for some categories. For example, when the participants saw learning to be 'memorising things', the external horizon could probably be some exterior assessments by other people and organisations.

I have to attend the exam anyway, for example, the exam requires me to explain a concept, so I need to memorise it and recall it when necessary. After all, understanding is not everything; you have to remember some things. S11

Memorisation is mainly expressed within an assessment context, which is also a significant external motivation for this learning conception. Because of the existence of closed-book exams, the participants had to keep pieces of knowledge in mind and reproduce them when required.

Although most external horizons are not as obvious and definite as this category, a clear distinction is made between university learning context and one's life world as a whole.

The students with the former horizon may have a limited learning horizon and think about learning in a study situation.

I came here to study English well so that I can communicate with others.

S9

(Learning is) when you learn something new in familiar or unfamiliar areas.

S2

You can understand what the lecturer has taught in class. Perhaps it's only a sentence, but now you can understand the underlying meaning or something. S17

By contrast, the second horizon (life world) is not confined to university study, since the situation has been expanded to an extensive life context. For example, the participants seeing learning as perspective and personal change said that:

Since I'm learning economics, my perspective of seeing some hot economic issues and my personal view of them will be different from those who are learning other subjects. S15

Learning includes everything. Even my chatting with you is learning. I'm learning your advantages. S13

I think learning is everywhere in life. [...] It all depends on how you discover it. S16

An example of a transcribed interview can be seen in Appendix VIII, which shows the process of analysis.

5.6.2.4 Creating the categories of description

Categories of description are “abstract tools used to characterise conceptions” (Marton et al., 1993, p. 283), each of which represents a qualitatively different way of experiencing. Categories of description and conception may be somewhat different, as Johansson et al. (1985, p.249) point out that “conceptions reflect the terms in which people interpret the world around them, categories of description express our interpretations of others’ interpretations”. In a way, conceptions, finalised categories and ways of experiencing can be used synonymously.

In a phenomenographic analysis, often the preliminary categories ought to be contrasted and re-adjusted many times, finding the similarities and differences between distinctive categories. The qualitative differences should be highlighted and separated explicitly and similarities should be integrated. In this sense, the quantity of categories is required to be controlled as finite as possible (Guisasola et al., 2013; Marton & Booth, 1997), and the finalised categories might be very different from the initial ones.

The fact that initial analytical work yielded a number of categories implied that I had kept an open mind to all the participants’ utterances. I found that most preliminary categories could be grouped together due to their similar meanings; meanwhile, the qualitative discrepancies began to be clearer and the characteristics of each category appeared to be highlighted. Consequently, the final number of categories was smaller than the initial one.

Another issue I encountered was that some excerpts were not easy to categorise; in other words, they appeared not to be affiliated to any existing category. Thus I needed to re-consider and re-interpret them further to determine if I had misunderstood the underlying meaning. In cases where I could guarantee that my interpretation was correct and many participants (at the collective level) had expressed the same meaning,

I considered it to be a new independent category.

When there were no ungrouped quotes left and the borderlines were explicit, the categories of description were almost finalised. I tried to use the core phrases to define and summarise the central meaning of each category. Where the meaning was too vague to be summarised, I used my own words based on my personal interpretation. It was also confirmed that there were no pre-determined categories; they all had to be elicited from the quotes and excerpts because “[b]y predetermining these categories of description, the analysis runs counter to the second-order nature of phenomenography and ends up simply being a researcher’s construction of the ways of experiencing a phenomenon – something akin to a phenomenological study.” (Reed, 2006, p.8).

In general, the finalisation of categories was built upon several adjustments and modifications. It could be seen that the categories in the first draft were very similar to certain existing learning conceptions (e.g. Marton et al., 1993). However, further analysis within each category generated the second and third draft, and the number of conceptions became larger. With constant comparison and integration, the amount of categories was controlled and four subcategories were created. It was also notable that although some categories of description such as increase of knowledge and understanding remain relatively stable, most others varied remarkably. The table below (Table 5.3) illustrates a detailed process of these changes.

First draft of categories of description	<ul style="list-style-type: none"> ● Learning as memorising ● Learning as acquisition of knowledge and skills ● Learning as application ● Learning as understanding ● Learning as interpreting reality ● Learning as change as a person
Second draft of categories of description	<ul style="list-style-type: none"> ● Learning as acquisition of knowledge and skills ● Learning as memorising and reproducing when necessary, particularly for exams ● Learning as application of knowledge

	<ul style="list-style-type: none"> • Learning as understanding • Learning as seeing something in a different way • Learning as a self-regulated and autonomous academic development • Learning as continuous and informal education phenomena • Learning as personal change
Third draft of categories of description	<ul style="list-style-type: none"> • Learning as acquisition of knowledge and skills • Learning as memorising and reproducing • Learning as application • Learning as understanding • Learning as seeing something in a different way • Learning as a self-regulated and autonomous academic development • Learning as continuous and informal education phenomena • Learning as personal change
Final draft of categories of description	<ul style="list-style-type: none"> • Learning as language improvement • Learning as increase of new knowledge • Learning as memorising and reproducing when necessary, particularly for exams (including two subcategories) • Learning as application of knowledge for various purposes (including two subcategories) • Learning as making sense of the knowledge acquired • Learning as gaining a new perspective to view reality • Learning as personal change and growth based on an extensive understanding of learning

Table 5.3 Draft and final categories of description

5.6.2.5 Constructing the outcome space

The phenomenographic perspective reveals a non-dualist ontology, and a relationship between people and a phenomenon. If there are different ways of experiencing a common or shared phenomenon, they can be related to each and are often hierarchical (Marton & Booth, 1997). This is a significant argument in phenomenography. Phenomenographic studies require researchers to not only identify and categorise different meanings, but also construct a “logically inclusive structure relating the different meanings” (Åkerlind, 2005d, p.323).

The structural relationship attributed to the outcome space can be constructed when the categories are ready. Often categories are required to be hierarchically constructed with high-level categories becoming more comprehensive and inclusive (Martin et al., 2003). This implies that, although these categories are qualitatively different, they have some structural relationship. This relationship should be hierarchical rather than parallel, from simplicity at the lower level to complexity at the higher level.

In my practice, the last step of the data analysis was to build a logical and structural relationship among the different categories of description. Deliberate categorisation would be beneficial for the establishment of a hierarchy. The identification of the referential and structural aspects, especially the discernment of the external and internal horizons in the early work, promoted the establishment and veracity of the hierarchical relationship inside the outcome space to a large extent. As stated above, the analysis of the structural aspect is based on the layered model structure of awareness (Gurwitsch, 1964). It is likely that the higher-level categories contain something the lower-level ones do not, which is why they are placed at higher levels. The upgrade creates more extensive categories.

To exemplify this, S23's statement indicates that his understanding of learning is very extensive.

I find that learning is more than learning knowledge on campus. Taking the courses, reading notes, doing exercises and analysing data are a kind of learning. As a business student, I think it is also a sort of learning to buy stocks and shares and I can feel something while doing so. I often go to the national library and read books, which is also a kind of learning. [...] Learning can exist in every second of your life. S23

On the one hand, he was aware of the regular learning activities on campus. On the other hand, learning was not confined to those university-based scenarios but can be

related to various aspects of his personal life and daily activities. This way of experiencing learning may be identified as a high-level conception, as it contains some unique elements and situations that are not involved in previous academic-focused conceptions.

It is also noteworthy that in some cases the linear one-way inclusive relationship between lower- and higher-level conceptions was sometimes challenged. While interpreting the data, I found students did not claim that certain conceptions were always more or less advanced than others and they could see the interplay between conceptions, thus the hierarchical relationship became blurred. This phenomenon was very obvious in conceptualising learning as memorisation, application and understanding.

For instance, S5 was aware of the interaction between memorisation and comprehending:

You may memorise something for a long time if you understand it. If you memorise it mechanically, you have to go back and read it again and it is easy to forget. S5

S4 and S10 was able to see the role understanding played in applying:

For example, you understand the knowledge and then you can apply it to other places. S4

Be clear about what it means and then you can apply it. By the time you understand these theories, you can truly understand how they came about and how to apply them. S10

The fuzzy boundary between these conceptions demonstrates the complexity in

understanding learning, and thus it may be necessary to devise some sub-categories. The vagueness of a rigid inclusive relationship between some learning conceptions questioned and challenged the hierarchical outcome space phenomenographic studies pursued and illuminated that the relation between various conceptions needed to be reconsidered.

5.6.3 Some data analysis issues

There are numerous issues worth noting during a phenomenographic data analysis (Åkerlind, 2005d; Åkerlind et al., 2005; Bowden, 2005; Lin & Tsai, 2008; Marton, 1986; Marton et al., 1993; Sharma, 1997; Walsh, 2000), all of which need to be resolved to guarantee the quality of the analysis, although different researchers may propose diverse solutions. Thus, as well as discovering and assigning referential and structural (internal and external horizons) aspects, identifying categories of description, and establishing the outcome space, these issues need to be clarified in the data analysis.

5.6.3.1 People-phenomenon relationship

It is inappropriate for phenomenographers to construct the structural relationship of categories of description parallel to determining the categories because “there is potential to distort the categories by including the relation of the researcher to the phenomenon in addition to the true focus of study, the relation between the subjects and the phenomenon” (Bowden, 2005, p.16). Phenomenographers are expected to understand “the way a group of individuals perceive the target phenomenon and not the phenomenon per se (which would represent the first-order perspective)” (Paakkari, 2012, p.24). Essentially, the objective of a phenomenographic study lies in the relationship between the subject and the phenomenon investigated. Although other relationships, such as the one between the researcher and the participants, and between the researcher and the phenomenon (Figure 5.1), inevitably exist in the study,

they may distract the focus, as well as the outcome, and should thus be bracketed as much as possible.

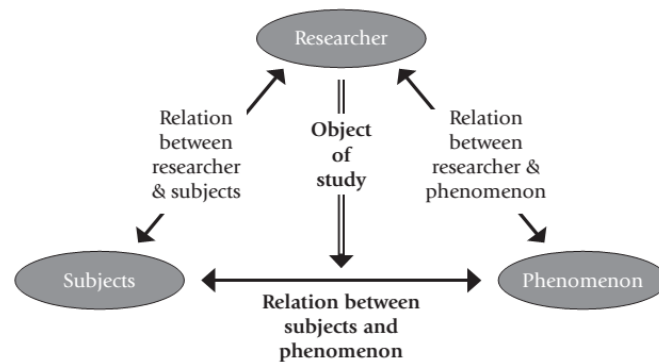


Figure 5.1 Phenomenographic relationality

Source: Bowden (2005, p.13)

Without the awareness of bracketing, researchers might add or adjust “categories where this is not supported by the data” (Walsh, 2000, p.23), and they could also impose “a logical framework on the data where this is not justified” (Walsh, 2000, p.23). As a result, they analyse the data “from the researcher’s or content expert’s framework, so that the interpretation of the data is skewed toward an accepted or expert view of the phenomenon” (Walsh, 2000, p.23). In this sense, the interpretation is not based on the collected data, but on the researcher’s framework.

The concept of ‘bracketing’ is crucial for both the collection and analysis of the data in this research. Bracketing in the interviews enabled me to keep an open mind to the interviewees’ responses and facilitated the acquisition of unbiased information. During the analysis, bracketing could help to discern people’s experience and conceptions as faithfully as possible. According to Walsh (2000, p.15), the most effective way to achieve this is “to base all analysis on the transcripts: if it is not in the transcript, then it is not evidence”.

5.6.3.2 Pool of meaning or whole transcripts

There are various approaches to deal with transcripts. The 'pool of meaning' is basically a 'de-contextualised collection of fragments' of the subjects' statements and the starting point for the data analysis (Reed, 2006). According to Marton's (1986) method to deal with transcripts, researchers first pick up some extracts related to the research question from the whole transcripts and then place them together as a 'pool of meaning'. Therefore, he concludes that there are two contexts to interpret the meaning of quotes, namely, the original transcripts from which they are elicited and the 'pool of meaning'. Marton prefers the 'pool of meaning' approach, while Bowden (1996, 2000) uses the holistic interview transcripts for the analysis. Bowden (1996, p.61) contends that "such de-contextualisation makes the task more difficult and is a methodological variant which is at odds with the underlying relational nature of phenomenography".

The fact that both of these approaches have their advocates is very interesting. As Reed (2006) observes, the Swedish researchers favour the 'pool of meaning' approach, while the Australians prefer to analyse all the transcripts. Both of these approaches have their drawbacks. Using the 'pool of meaning' approach, selected quotes and excerpts may not be faithfully and accurately interpreted in the de-contextualised context rather than the original transcripts from which they were elicited. Conversely, when utilising the whole transcripts approach, researchers are inclined to immerse themselves in individuals' statements, rather than analysing them at a collective level. Some proponents of the 'pool of meaning' approach note that the whole transcript approach could make it difficult to identify the key aspects of experience; for instance, Åkerlind (2005d, p.327) contends that "taking a whole transcript approach to analysis may reduce the clarity of the key aspects of meaning that researchers search for, because the meaning a phenomenon holds for an individual may vary during the course of an interview".

When analysing the data collected for this research, I mainly adopted the 'pool of

meaning' approach. The essence of phenomenographic analysis lies in comparing and contrasting between different individual transcripts so as to identify the meaning and structural aspects and further generate the categories of description. While the whole transcript approach places much attention on individuals and can identify key aspects of experience within a transcript, comparison that ought to be made between different interviewees is weakened and marginalised. Thus the approach might violate the collective-level analysis that will be discussed below. Yet while using the 'pool of meaning' approach and removing the utterances from their context, I did not downplay the importance of the original transcripts. In practice, I often re-visited and consulted the original context to justify and clarify the meaning of utterances, especially when the statements were vague and hard to understand.

5.6.3.3 Mixed conceptions in responses

In all the cases, the students did not simply express their sole conception of learning; for example, one response may have contained mixed conceptions across distinctive categories. A number of researchers have encountered a similar situation (Lin & Tsai, 2008; Marton et al., 1993). As Chiou, Liang and Tsai (2012) observe, the developmental and experiential components of conceptions of learning can exist simultaneously. Unsurprisingly, individuals can have numerous conceptions of learning, even if they have formed more advanced conceptions. It is suggested that the most dominant and significant category should be interpreted and elicited by the researcher in an attempt to make the analysis direct and clear, since the interviewees could have proposed some explanatory conceptions to arrive at the dominant one (Sharma, 1997); in other words, the researcher is expected to be able to identify the true meaning and major purpose of a participant's response. However, Lin and Tsai (2008, p.564) disagree with this position and state that "dominant and minor categories coexisting simultaneously may provide potential indications toward the conceptions of learning. The 'whole picture' of the learners' conceptions of learning needs to be entirely and truly represented".

In my research, I attempted to combine the merits of both solutions, but I followed neither of them strictly. Sharma's (1997) recommendation reminded me that for some interviewees there might be some ways of experiencing learning that seemed to be more important than others. If the students compared two conceptions and deliberately chose their preferred one, I only took account of that one, rather than both of them. But I was also aware that Sharma's suggestion could lead to results which might not always be faithful to the interviewees because of the researchers' intervention while discriminating the data. The most important value of Lin and Tsai's (2008) solution was that it advised me to keep an open mind to all possible conceptions during the data analysis. Moreover I did not exclude the possibility that the interviewees may have treated some conceptions as equally important. However, I also noticed the weakness of this proposal that it was inappropriate to aimlessly list and value all the conceptions as equal regardless of their significance.

5.6.3.4 The collective level

The transcripts need to be analysed at a collective level, as Collier-Reed and Ingerman (2013, p.244) state "it is important to recognise that the outcome of an analysis is firmly located at the level of the collective, and that attributing it to an individual student is methodologically inappropriate".

Experience can be sensitively influenced by the context, and the participants may have expressed distinctive meanings in different circumstances. The range of variation of all the participants was likely to have been involved in the range across each participant. Thus, the whole set of transcripts was able to represent a picture of the ways in which the students experienced a particular phenomenon at a specific time and in a specific context (Åkerlind et al., 2005). This is an important basis on which researchers claim to make a collective-level interpretation.

Phenomenographic studies often investigate a range of meanings in a particular group of people rather than revealing the different meanings expressed by one interviewee. Each transcript is explained based on the similarities and dissimilarities within the holistic set of transcripts, and none of them can be interpreted independently of the others (Åkerlind, 2005b). The essence of phenomenographic analysis lies in comparing and contrasting between different individual transcripts so as to identify the meaning and structural aspects and further generate the categories of description.

In addition, a collective-level analysis is related to the ultimate aim of phenomenographic research, which, as Åkerlind, Bowden and Green (2005, p.76) claim;

[...] is not to capture any particular individual's understanding, but rather to capture the range of understandings across a particular group. In other words, the analysis goes across and between all of the interview transcripts so that the categories of description that are yielded reflect not individual meanings or conceptions, but rather conceptions from a pool of meanings. The interpretation is, thus, based on the interviews as a holistic group, not as a series of individual interviews.

It is the crucial aspects of the collective experience, rather than the details of individuals' experience, that should be highlighted during the analysis (Åkerlind et al., 2005).

In practice, I stopped myself from indulging too much in analysing individual transcripts. The 'pool of meanings' approach ensured that the analysis was on the basis of contrasting between various transcripts. If some individual's utterance seemed to be different and special, I would first ensure the meaning of it was faithfully understood and interpreted. Then I placed it in the 'pool of meanings' and compared it with others, rather than focusing on a personal story.

In addition to the data collection, Säljö's (1997, p.177) criticism, that it is problematic for phenomenographic researchers to choose to consider the "utterances from individuals made in specific situations and with varying motives" as indicative of conceptions, could be further minimised here following the collective-level analysis. Adawi et al. (2001, pp.19-20) contend that

[Säljö's criticism] seems to confuse the individual and the collective levels, which leads to an understanding that a phenomenographic analysis is an analysis of individual pieces of data, where it is in fact an analysis of a set of pieces of data at the collective level. It is the whole of the data material, generally interviews, that goes to make up the pool of meaning with which the researcher engages to analyse structure and meaning, [...] not as a set of individuals but as a deliberately varied and holistic sample of the population of interest.

As stated, the emphasis of phenomenography lies in the collective mind. Phenomenographic researchers must not indulge in an individual's world too much, rather it is the collective level that analysis should be carried out. Sandberg (1997, p.206) notes that a conception "cannot be seen in its entirety in data obtained from a single individual, but only in data obtained from several individuals", and each individual can only "express some important aspect of the particular conception". Even though some interviewees might not be able to articulate their ways of experiencing, the ultimate aim is the variation of conceptions among the group of students (Cope, 2000; Smith, 2010).

5.7 Validity

Validity essentially refers to the "internal consistency of the object of study, data and findings" (Sin, 2010, p.308). In Åkerlind's (2005d, p.330) words, it is "the extent to which

a study is seen as investigating what it aimed to investigate, or the degree to which the research findings actually reflect the phenomenon being studied". In phenomenographic research, validity refers to the extent to which the results can correspond to the participants' experience of the phenomenon in question (Uljen, 1996). According to Collier-Reed et al. (2009, p.343), there are three kinds of validity that may be applicable to phenomenographic research;

Content-related validity concerns the researcher's familiarity with the subject matter under investigation; methodological validity looks at how the goals of the study match its design and execution; and communicative validity involves the researchers' ability to argue their interpretation of the data.

Bowden (1996, 2000) argues that validity and reliability cannot be completely separated in phenomenographic research. He further maintains that the issue of validity is essentially embodied in every stage of the research (Figure 5.2).

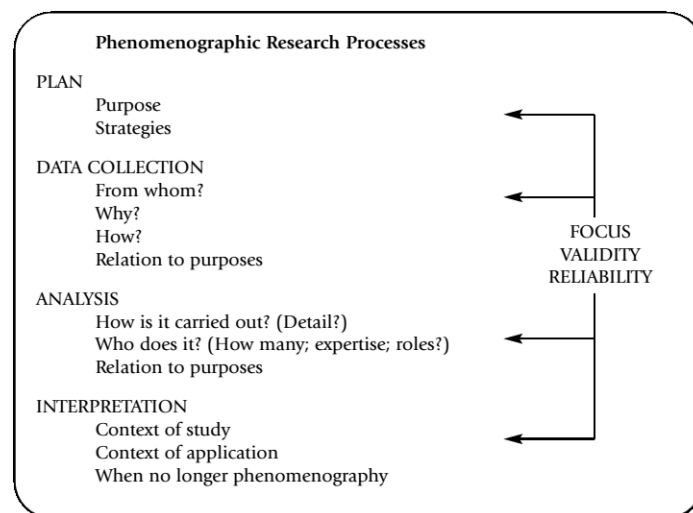


Figure 5.2 Phenomenographic research process

Source: Bowden (2000, p.7)

The research aim should be made explicit at the planning stage and the selection of

appropriate interviewees should be guaranteed in order to maximise the scope of experiences and perspectives. Interviews should be as open-ended as possible so that the participants can select the aspect in which they are most interested and the interviewer should not ask leading questions. It must be ensured that the conversation focuses on the phenomenon in question, rather than anything irrelevant and the data analysis and results should be based on the whole transcripts. It can be concluded that Bowden “sees the validity in qualitative research lying largely in transparent processes that can be argued for within a coherent framework” (Åkerlind et al., 2005, p.90).

Cope (2004, pp.8-9) proposes a series of comprehensive strategies to guarantee the validity of phenomenographic research, as outlined below.

- The researcher’s background is acknowledged (Burns, 1994) ...;
- The means by which an unbiased sample was chosen is reported;
- In cases where convenience samples are used the characteristics of the participants should be clearly stated, providing a background for any attempt at applying the results in other contexts;
- The design of interview questions is justified;
- The strategies taken to collect unbiased data be included;
- Strategies used to approach data analysis with an open mind rather than imposing an existing structure be acknowledged;
- The data analysis method be detailed;
- The researcher accounts for the processes used to control and check interpretations made throughout analysis;
- The results are presented in a manner which permits informed scrutiny;
- Categories of description should be fully described and adequately illustrated with quotes (Booth, 1992).

The above elements provided me with a very comprehensive and practical inventory, against which I was able to check my practice in phenomenographic research. In the

light of the suggestions proposed by these researchers, I took account of numerous issues to ensure the validity of my research, beginning with a description of my personal knowledge of the phenomenon investigated. As Cope (2004, p.8) notes;

[...] despite the best intentions of approaching data analysis with an open mind, a researcher's prior experiences are part of the process. Describing the researcher's scholarly knowledge of a phenomenon is a means of illuminating both to the researcher themselves and to readers of the study, the context within which analysis took place.

Since the researcher's personal experience and knowledge of the phenomenon have the potential to influence the study in a certain way, it is necessary to clarify this as part of the holistic context. As someone who has studied education for twelve years, I have little knowledge of the world of international business. I knew little about IET and the only impression of this academic discipline perhaps came from my daily life experience; thus, my personal understanding is very limited. I knew nothing about the course design, training goals, teaching and learning within the programme, so for me, everything related to this programme was new. I searched the IET programme online and acquired some background knowledge before commencing the field work, but this was all I knew about this programme. I did not think that limited knowledge to the investigated programme was a barrier, instead it enabled me to keep an open mind to discover the students' learning experience in the programme.

In addition to clarifying my personal experience and knowledge, efforts have also been made from several aspects to ensure the validity of this study. Firstly, I designed and conducted the study rigorously and complied with the principles of phenomenography and the ultimate goal of the study. Secondly, I detailed the characteristics of the sample to represent the maximum variations of the entire population. Thirdly, the interview questions, which were made based on the review of abundant literature and existing empirical works, were consistently improved and polished since the early trials to

ensure their quality. Fourthly, attention was paid to improving my interview skills; for example, trying to ask less leading questions during interviews and avoiding introducing new concepts that had not been mentioned by the interviewees. All of these issues at this stage have been detailed in this chapter. Fifthly, I have provided a detailed process of the data analysis, with some emphases and discussions on certain key issues at this stage. Sixthly, the categories of description were identified based on a repetitive process of analysing and re-analysing and grouping and re-grouping, with sufficient quotes or excerpts to illustrate each of them and the logical relationship that was built. All this attention was paid to guarantee the validity of this research and reveal the participants' learning conceptions as faithfully as possible.

5.8 Reliability

The issue of reliability is often referred to as replicability, which concerns the extent to which some research findings and results of a certain study can be reproduced by other researchers in similar works (Booth, 1992). Apparently replicability usually focuses on the categories of description or further outcome space. However, it may be problematic to seek it from a phenomenographic perspective because;

[...] although broad methodological principles are adhered to, the open, explorative nature of data collection and the interpretative nature of data analysis mean that the intricacies of the method applied by different researchers will not be the same. Data analysis, in particular, involves a researcher constituting some relationship with the data. A researcher's unique background is an essential part of this relationship. Consequently, replication of outcome spaces by different researchers is unlikely and not necessary. (Cope, 2004, p.9)

Marton (1988) acknowledges the fact that different researchers may define distinctive

categories, even when facing the same cluster of data. He refers to a metaphor, comparing the phenomenographic research to a botanist who discovers a new species somewhere on an island. If the new plant has not been recorded before by anyone, the botanist must create a new category to accommodate it. Once the category is made, a platform can be constructed on which different botanists will be able to communicate with each other. Likewise, once the categories of description are finally concluded, researchers can actually reach a position of comparing their findings to existing results and judge which will be useful for them. The reliability in phenomenographic studies is based on whether or not the results can be derived from other research; thus, it is necessary for phenomenographers to compare their results with existing findings to check their reliability. Traditionally, the establishment of the reliability of phenomenographic research has heavily relied on the notion of 'interjudge reliability', which measures "the communicability of categories and thus gives the researcher information that someone else can see the same differences in the material as he or she has done" (Säljö, 1988, p. 45). The reliability of the results can be judged based on "the percentage agreement between all the coders' classifications before and after consultation" (Lin & Niu, 2011, p.5).

However, Sandberg (1997) criticises 'interjudge reliability' for two significant reasons, the first of which is that 'interjudge reliability' draws some principles from the positivistic and objectivist tradition, imagining that there is an independent world and the task is to measure the extent to which the categories of description match. However, the authentic aim for phenomenography is to reveal individuals' experience about certain aspects of reality. Secondly, 'interjudge reliability' overemphasises the comparison between different studies while downplaying the researchers' procedures to achieve certain conceptions, and thus the faithfulness of conceptions to interviewees' real experience of a phenomenon is questionable. Therefore, Sandberg (2005, p.59) suggests that researchers have an interpretative awareness and "acknowledge and explicitly deal with our subjectivity throughout the research process instead of overlooking it". As Cope (2004, p.10) explains, "[a] researcher is required to be aware

of their interpretations during the research process and demonstrate how the interpretation processes have been controlled and checked". Sandberg (1997) points out five steps to exercise interpretive awareness, which can be summarised as follows:

- Orienting to the phenomenon in question and bracketing researchers' biases and pre-understanding;
- Describing, not explaining experiences;
- Treating all aspects of descriptions equally;
- Searching for the structure of meaning;
- Concentrating on the 'what' and 'how' and their relationship.

I followed Sandberg in the belief that they were illuminating for my research. Firstly, I always orientated my work toward the relationship between the phenomenon and the participants rather than highlighting my own awareness and reflection during both the data collection and analysis. Secondly, I was always clear that my aim was to describe the experience as variously and faithfully as possible, and I never attempted to explore the reasons behind. A large number of quotes were used when describing each conception to assure the faithfulness. Thirdly, all the individuals' descriptions were treated as equally as possible to demonstrate an open mind to each particular way of experiencing. Fourthly, the finalisation of the meaning structure was achieved through a highly repetitive process including reading, comparing and categorising. The fifth step was not strictly implemented in this study, since it followed the referential/structural framework. Nonetheless the identification of the referential and structural aspects was detailed in the previous chapter.

5.9 Generalisability

Generalisability is essentially known as a kind of external validity, which is defined as "the extent to which one can expand the account of a specific population to other

persons, times, or settings” (Maxwell, 1992, p. 293). It may be more appropriate to be named as transferability in qualitative research to examine “the extent in which findings can be used or applied in other contexts” (Sin, 2010, p.309). Generalisability is a debatable issue for phenomenographic studies. Furthermore researchers have different views as to whether it can be used to evaluate the quality of qualitative research (Larsson, 2009).

On the one hand, the pursuit of generalisability in phenomenographic research may be problematic; for instance, Kinnunen and Simon (2012, pp.201-202) claim that “generalisability and replicability in a sense they are understood in quantitative research tradition are based on the positivistic and objectivist view of the knowledge and thus do not work in judging the quality of the phenomenographic research”. Åkerlind (2002, p.12) states that “phenomenographic research outcomes have been described as not enabling generalisation from the sample group to the population represented by the group, because the sample is not representative of the population in the usual sense of the term”. Participants are chosen to maximise the variations of conceptions rather than attempting to be the representatives of the population. Marton (1986) even argues that original categories of description are some discoveries that cannot be replicated.

On the other hand, however, Åkerlind (2005d, p.323) contends that “ideally, the outcomes (results) represent the full range of possible ways of experiencing the phenomenon in question, at this particular point in time for the population represented by the sample group collectively”. The results obtained from a phenomenographic study may be partially shared by other researchers. The scope of meaning of the sample may be representative of the scope of meaning within the population (Marton & Booth, 1997). Similarly Watkins et al. (2005, p.288) state that:

The aim of phenomenographic interview analysis is to construct a range of conceptions held by the group of participants at the time of the

interviews. It is not assumed that the interviewees espouse the same conceptions at different times or in different contexts. Nevertheless, the variation of conceptions obtained from the analysis is seen as generalisable across contexts.

According to Miyata and Kai (2009), the external validity of a research study can be improved by providing readers with rich and relevant information to enable them to decide the applicability. Thus readers may also play a role in determining the extent to which the results could be transferred to their situation (Attorps, 2006; Berglund, 2006, Cope, 2002). In this study, I specified a clear and careful design and procedure and followed this with an explicit depiction of the context of the study, such as the objectives of the programme, the curriculum, the pedagogy and assessment. Furthermore, the characteristics of the participants or IET students have also been detailed. Therefore, I believe that the rich information provided could enable readers to make up their own minds if the findings from my study can be applied to their own context and population.

5.10 Ethical concerns

Although the study was conducted outside the UK, it adheres to the same ethical standards as research in the UK, as required by the British Educational Research Association (BERA) Ethical Guidelines (2011). The Ethics Application Form was completed and checked by my supervisor, and then submitted and approved by the department before the commencing of my fieldwork in March 2014.

The recruitment of interviewees was based on the principle of voluntary participation, and none of them was forced to take part in the research. A consent form (Appendix VI) and an information sheet (Appendix VII) were produced in advance of the field work and they were presented to potential participants before they became involved. The information sheet provided basic information about the study in a Q&A form so that

the participants were able to be clear about the study and the role they might play in the process. Information related to the study, such as its purpose, the important role of the interviewees, the procedures used to complete the research, the ways in which data was used, to whom the results were reported, and the potential risks and benefits were fully explained to all the participants. The consent form was produced in a plain format and in Chinese so that all the informants could understand it. Signing the form normally meant that the participant understood the study and was willing to join it. They were advised of their rights to withdraw from the research at any stage of the interview if they were unhappy with certain questions. Fortunately, no participants quit the interview. I could feel that they were sometimes troubled by some questions, for example, the ones which might bring them to a meta-awareness level to philosophise or theorise something. Sufficient time was given in such contexts to answer the questions, and I did not push them or show impatience. The transcripts were not shared with participants. As stated in Chapter 2, these were very busy IET students, who were often required to take various courses all day long. Asking them to check their transcripts would inevitably cause extra work and be very time consuming, as a result of which none of them might be willing to do it. More importantly, “phenomenography seeks meaning across individuals’ stories or examples of their experiences, that is, at a collective level rather than an individual level” (Åkerlind et al., 2005, p.77). Sharing the transcripts with participants in this sense might risk focusing too much on individual students, therefore, it is inappropriate for phenomenographic studies.

Additionally, confidentiality and anonymity were the top priority. As Sin (2010, p.311) notes, “[p]reserving the anonymity of participants and their institutions by using pseudonyms and disguising locations to prevent recognition of identities are common practices”. I used codes (e.g. S1, S15) in this study as a way to maintain the participants’ anonymity and personal privacy. I also anonymised the selected university to protect its reputation. I realised that it was essential to protect everyone’s privacy if I intended to publish my findings or share them with the academic community.

To fully guarantee the safety of the collected data, I stored it on my personal laptop, which was password protected so that no one could use it for other purposes. From the very beginning, the data was supposed to be exclusively used for this study. In cases where the transcripts had to be printed, I tried to protect them carefully. However, the interviewees had the full right to read and comment on their own interview recording. Furthermore, it is good practice for researchers to inform their participants of the outcome of the research (BERA, 2011). Thus, I tried to provide them with copies of reports arising from their participation to ensure that they were clear about the outcomes.

I believe that the students were able to benefit from this dialogical process (interviews) as a reflection of their learning activities which may have helped them to improve and achieve their future goals. However, there may have been some risk related to sensitive topics, such as their academic performance, and some of the interviewees may have been reluctant to disclose this; therefore, I had to deal with this skillfully and maintain a relaxed and friendly conversational atmosphere.

I also prepared some British souvenirs consisted of inexpensive key rings with London logo on them and some British cookies as a reward to thank my interviewees for their participation and information. Since these small gifts were given in the spirit of gratitude, I was sure that they would not have a negative influence on the sincerity of the conversation and quality of the data. Moreover, I was delighted to provide relevant information about my personal experience of studying in the UK to all those who were interested.

5.11 Chapter summary

The central concern of this chapter is the implementation of the study. As a new researcher using phenomenography, I have to become familiar with this approach; thus,

trials and a pilot study were arranged in advance.

The participants in this study are purposefully selected to ensure the maximum variation and semi-structured interviews with strong phenomenographic characteristics are utilised to collect the data. The analytical procedure has been detailed in relation to the theoretical framework and a number of issues encountered and needed to be carefully considered when dealing with the data are discussed. Various solutions to address these issues are compared and I then clarify my practice in this study. Finally, certain research quality-related issues, such as validity, reliability and generalisability, are also examined in this chapter.

Some of the major findings of the research are presented in the next chapter. The seven conceptions of learning are exemplified by the interviewees' utterances and excerpts, and interpreted using the referential/structural framework presented in Chapter 4.

Chapter 6: Research findings

6.1 Introduction

This chapter presents the research findings in response to the first research question: What are the conceptions of learning held by IET students in the CFCRS programme? It sets out to detail the qualitatively different ways in which IET students experience or understand learning in the programme investigated. A total of seven main conceptions of learning are found, and each of them are described and evidenced by the interviewees' utterances and excerpts. There are also some sub-categories under certain conceptions, which add to the complexity of the findings. Each conception is further interpreted in relation to the referential/structural framework presented in Chapter 4. The presentation and interpretation of the results in this chapter provide empirical evidence for further discussion in the following chapter. A brief statistical analysis is provided to show the proportion of each conception. Based on some case studies, this chapter also provides more details about these participants and a clearer picture of the characteristics of these students.

6.2 Conception A. Language improvement

English was regarded as a crucial skill by the CFCRS programme students. Many of them chose this programme in the hope that their language skills would be improved; therefore, they highly emphasised the importance of reading, writing, listening and speaking English and believed that this would be of benefit to them in the future. They cherished every opportunity to discuss academic problems with their Australian lecturers, and the majority of them were delighted with these chats, which they viewed as a chance to improve their speaking and listening abilities. The English textbooks introduced from the Australian university enabled students to enhance their reading ability. The learners' writing skills could also be developed in the first and second years

of study in some specific lessons. These learners had to study English through the whole four years. However, other non-CFCRS programme students ceased English learning after the first one or two years of study. This was because they often had no motivation to study English once they passed linguistic exams and obtained certificates in their early learning.

It was mainly English, and then knowledge of finance, [...] (English is) a skill, such as oral English. Your English will be much better than before. S7

Our English is much better than that of other students in other disciplines. S8

I came here to study English well so that I can communicate with others. S9

We have some foreign lecturers and we often have opportunities to communicate with them, which is very useful for enhancing our oral English. S14

Another achievement is the enhancement of our language level. We have foreign English lecturers, so we are able to keep learning English. S16

The first is good English. [...] (We) use English to write papers and make presentations. S22

I have many friends who are studying other disciplines and they don't learn English in their second year of study. They gave up English learning when they passed the College English Test. S23

The referential or meaning aspect of this initial conception is that learning in the Sino-

Australian programme is an opportunity to improve students’ linguistic abilities. The structural aspect of this conception consisted of the internal horizon and the external horizon, and this can be illustrated by the figure (Figure 6.1) below:

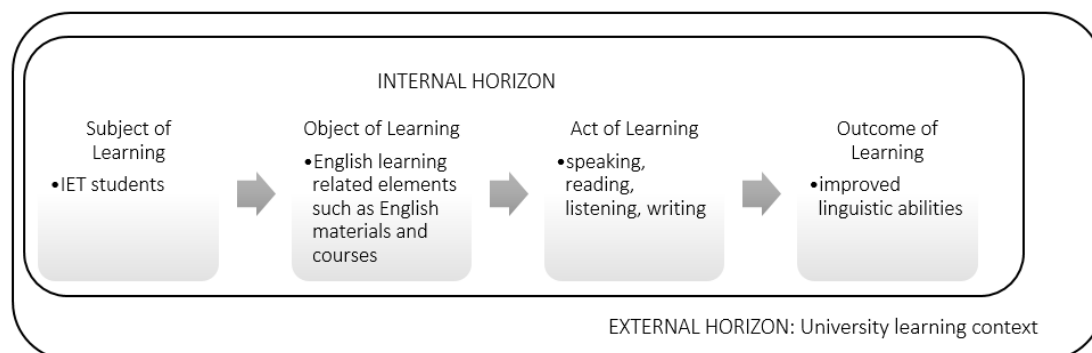


Figure 6.1 Learning as language improvement

Figure 6.1 serves as a model to illuminate the structural aspect, more specifically, the constituents of the internal and external horizons and the relationship therein. The internal horizon represents the students’ focal awareness, i.e., to which component parts they pay attention in each conception of learning and the relationship therein. The external horizon depicts a context, which is beyond the learners’ focal awareness but surrounds each conception and serves as a contextual factor. According to the excerpts, it seems that each student may capture certain elements of the internal horizon to various degrees, but hardly did they describe these in a very comprehensive way. Therefore, it is necessary to organise the excerpts in terms of the subject of learning, the object of learning (the content from which students learn), the act of learning (the actions or behaviours students often refer to) and the outcome of learning (the result students intend to achieve).

The students with this conception experience learning as the enhancement of their speaking, reading, listening and writing English abilities. The internal horizon consists of the IET students, all the English-related learning materials and courses. The actions the students take are speaking, reading, listening and writing, as they want to improve English from these four aspects. The external horizon is set within the university

learning context.

19 of the 23 students explicitly talked about this conception, which means that more than 80 percent of the interviewees understood learning as a means to improve English. This high percentage is not surprising when considering it in the context of the CFCRS programme investigated.

6.3 Conception B. Increase of new knowledge

The students in this category simply viewed learning as a very general and vague phenomenon. When asked the question, 'what do you mean by learning?', S1 replied "I have never thought about what learning is in this exam-orientated education system". This response illuminated that some of these students had never reflected on the latent meaning of learning since they entered the Chinese education system.

Most participants simply took learning for granted, i.e. learning could explain learning *per se*, or learning was to learn new things they never encountered before or were unfamiliar with. They had seldom explored or reflected on the meaning of learning. They thought that it was unnecessary to define learning; rather, what was important was what should be learned, what had been learned, and by what means. Although my question was designed to elicit their learning conceptions, the participants tended to refer to the content, means and outcome, rather than explaining their understanding of the phenomenon of learning.

With this conception, the expected outcome was the quantitative increase of disciplinary information and knowledge by means of certain learning methods, such as reading and taking notes. The intention was accumulating as much knowledge as possible. It was not imperative to think about the underlying meaning of pieces of information and knowledge or consider their potential relationship therein.

*(Learning is) when you learn something new in familiar or unfamiliar areas.
That is what I call learning. S2*

Reading a book is learning, taking courses is learning. (Learning is) studying something you didn't know about before. I knew nothing about politics and economics, but now I've learned some theories and what crises are all about. So I've really learned something. S8

Firstly, my specialised knowledge has been enriched, which is the 'hard aspect'. [...] Learning should be a kind of behaviour through which new things can be accepted purposefully. S13

I wish I could acquire some specialised knowledge throughout these four years, [...] I think learning is expanding your knowledge by all means. S15

(Learning is) to perfect and complement myself by reading and taking courses. [What is perfecting and complementing yourself?] It means enabling yourself to know more. S18

I chose IET to learn specialised knowledge. S20

(Learning is) learning something, know about something generally. S21

I've gained lots of knowledge now and become an expert. S22

It is very important that I've learned lots of knowledge. S23

According to the excerpts, the participants depicted a logical process of learning, which

consisted of the objective, the means, and the outcome. They emphasised new knowledge as the objective of learning, and this may be something they had never encountered before, or with which they were unfamiliar. They believed that they could acquire it from areas with which they were unacquainted and multiple means could be adopted, such as taking courses and reading. The knowledge they referred to was usually restricted to specialised academic knowledge, such as economics and accounting, and the results of the process were often described in a quantitative sense, such as an increased amount of knowledge.

During the conversations I found that the participants were facing huge academic pressure due to the learning burden or workload. The selected university also had a domestic IET programme, and comparing the two programmes in the students' handbook, it was evident that the CFCRS programme students were required to take many more courses. These extra parts were composed of English-related learning, and students were also required to learn much of the specialised knowledge in English, which meant that they needed to read and learn from English textbooks. On the one hand, this was a difficult task for those students whose native language was Chinese, but on the other hand, the English learning materials enriched their academic horizon. As S20 said, in the context of the CFCRS programme, students could increase their knowledge of a linguistically different world.

The meaning aspect of this conception is the quantitative increase of new knowledge. The participants conceptualised learning as acquiring as many new things as possible. As they expressed, it was possible for them to acquire brand new information about domains with which they were familiar or unfamiliar; therefore, in terms of quantity, they emphasised the accumulation of knowledge.

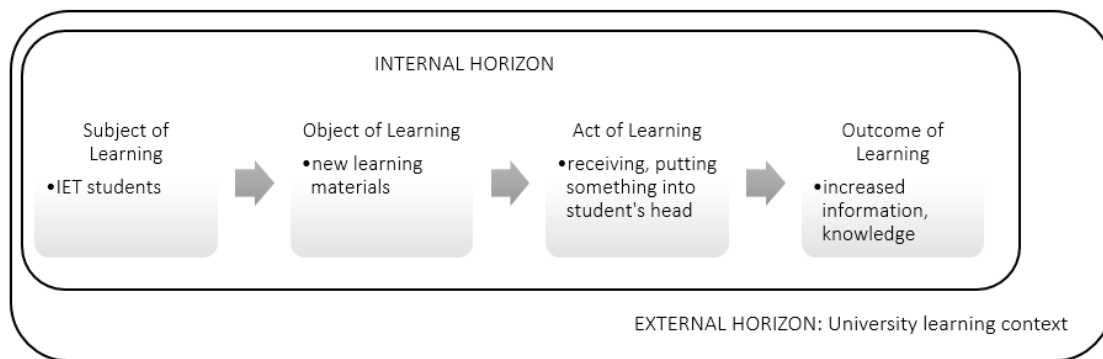


Figure 6.2 Learning as increasing new information and knowledge

The students in this subcategory aim at enriching and accumulating new information and knowledge, and thus the major learning object is something new in the learning materials. The interviewees expressed their understanding of learning in a superficial and vague way and therefore they merely receive, pick up and store fragmented pieces of knowledge and information. To sum up (Figure 6.2), the internal horizon of this conception consists of the IET students, new learning materials, the act of learning or more precisely, receiving, putting something into their heads (taking in). According to the extracts and quotes, it is evident that most of them are confined to academic knowledge study. None of the interviewees expanded or related learning to a broader life situation. Therefore, the external horizon for this conception should be delimited to the context of university learning.

6.4 Conception C. Memorising and reproducing when necessary, particularly for exams

It was apparent that the participants distinguished between memorisation with and without understanding in this conception. Most of them were in favour of rote learning or mechanical memorisation, while only a few preferred memorisation with understanding.

6.4.1 Conception C1. Memorisation without understanding

The students responded that, in order to learn something they had to remember it, although many considered memorisation to be just a kind of low-level learning. Memorisation is greatly emphasised during learning in the Chinese context, from primary schools to universities;

Keep it in mind and never forget... S4

To remember it so that you can know about it, keep it in mind. S7

I think it means breaking whole knowledge into pieces and then absorbing them. [What is absorbing?] It is remembering for a long time. I like to memorise it once and again. S12

(Learning is) acquiring knowledge and learning it by heart. S14

(If I don't understand), I will memorise it. I have no choice I can only think of that as a kind of law or something and I remember it like that. There is no deep understanding. S22

The IET students often used 'remember', 'memorise' and 'keep in mind' to describe this conception. They had a strong ability to retain knowledge and information in their minds, despite not knowing its underlying meaning.

It was obvious that no attempt had been made to build memorisation upon understanding and many of the participants excluded understanding from the process of memorisation. Interestingly, however, these Chinese were skilful in remembering things and they created various ways to store concrete knowledge. S12's way to remember something illustrated that remembering information did require some

techniques or skills. More specifically, he would break a whole collection of things into pieces and store them one by one through repeated memorisation. Therefore, the difficulty of memorising things they did not understand was reduced and they could remember one piece of the whole knowledge at a time and then connect the pieces together later. S22 also depicted a very interesting approach to remembering something she did not comprehend, which involved trying to persuade herself to treat the thing as if it was a natural law or a mathematical formula. It was important, as S12 said, to memorise it repetitively like a rehearsal. Overall, the participants demonstrated a strong trend of mechanical memorisation.

The most significant purpose of memorisation was to pass the final exams at the end of each semester. The Australian lecturers tested the IET students more often than the Chinese lecturers did, yet exams usually took the form of a quiz and essay writing throughout the entire learning process, which caused little pressure for the participants. In contrast, conventional written examinations were predominant on Chinese campuses. According to the university's regulations, lecturers were required to test their students by final closed-book examinations; therefore, students were forced to remember the knowledge and information taught in class and recall it in the test paper. The educational authorities believed that this was the most effective method to test the extent to which IET students understood what they had been taught. This traditional assessment lead to the close connection between memorising knowledge and passing exams.

Every course had a final exam at the end of each semester. For example, if they took 10 courses during one semester, they needed to take and pass 10 separate exams. The final exam was a symbol that learners had completed the course with a satisfactory academic performance. These students devised multiple ways to keep the subject content in mind. Obviously the most important motivation for memorisation is the existence of exams in which learners are required to reproduce the knowledge they have learned.

Learning is [...] I'm a student for exams. Learning is good and I like it. I usually motivate myself by means of exams. S22

Nonetheless, a number of participants were very dubious about the function of exams. They described a miserable experience before the exam date;

I don't think exams can show what you've learned. You prepare intensively before the test date and then you pass, but you still have no idea of what you've learned. I think all universities are the same. They make an effort at the last minute (preparing intensively before the test date) but (students) learn nothing. S1

I don't like exams. They're very intensive and we have to memorise many things because we've taken many courses. The two weeks before the exams are tough; your biological clock is abnormal and you have to learn everything every night. S17

Evidently these IET students did not like mechanical memorisation due to the close relationship between rote learning and exams. However, the learners also recognised that mechanical memorisation *per se* had some benefits. Interestingly, they often analysed it and compared it with understanding and found that mechanical memorisation could do something that understanding could not;

For example I understand a concept in my own way, but I cannot express it very accurately. I have to attend the exam anyway, for example, the exam requires me to explain a concept, so I need to memorise it and recall it when necessary. After all, understanding is not everything; you have to remember some things. S11

The argument was that learners could not totally rely on understanding because of its limitations; on the other hand, the positive role of mechanical memorisation in learning should not be underestimated. As the excerpt indicated, it was possible to internalise the underpinning meaning of knowledge, but be unable to express it accurately when the need to recall it arose. In this case, mechanical memorisation or rote learning might help learners to remember things in a precise way.

The example below has a similar meaning, although this participant only very briefly compared memorisation and understanding without attempting to explore their relationship further;

Both memorisation and understanding are methods, but their results are not very different. Good memorisation may be better than understanding.

S16

This participant pointed out that memorisation and understanding were similar because they were both means. Moreover, S16 discussed and compared them from the perspective of outcome. While he did admit that they had some differences, he gave no further indication of what the differences were, except to say that the outcome of memorisation might be better than that of understanding. In a way S16 separated understanding from memorising and regarded them as contradictory. Apparently he was unable to see the potential relationship between memorising and understanding and the role comprehending played in remembering things.

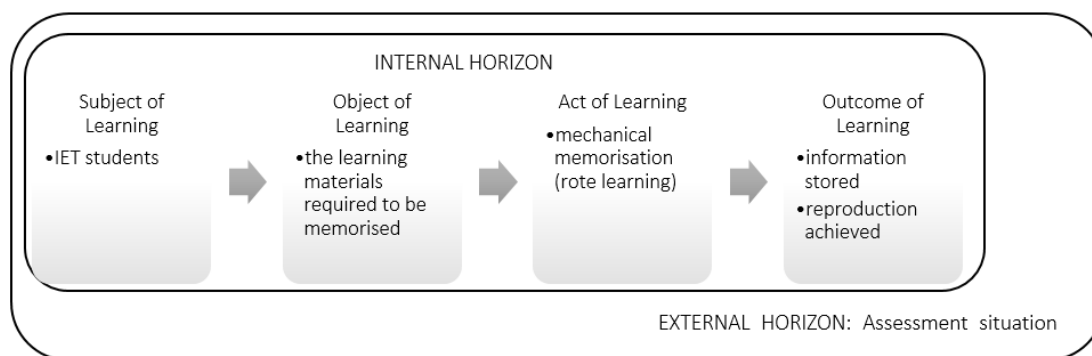


Figure 6.3 Learning as memorisation without understanding

The referential aspect refers to remembering information mechanically and recalling it when necessary; thus, the interviewees expect to keep knowledge in mind and never forget it and recall it in exams. As Figure 6.3 indicates, the learning object encompasses the learning materials that required to be stored such as words, phrases, sentences, facts and theories. The learners will attempt to remember as much as possible by means of repetition and rehearsal without comprehending the meaning. The external horizon for this subcategory is the situation in which reproduction is required for exams and various other forms of assessment. Despite that the students did not like to memorise things, they had to do it for the sake of the exams.

6.4.2 Conception C2. Memorisation with understanding

Two students linked memorisation with understanding and viewed them as intertwined. More specifically, understanding is the foundation of memorisation and memorisation improves understanding; meanwhile, the sequence (what comes first and what comes after) is not important and understanding exists either way. In this respect, this subcategory is different from the previous one, in which the position of understanding could barely be found;

You may memorise something for a long time if you understand it. If you memorise it mechanically, you have to go back and read it again and it is

easy to forget. S5

Interviewee: You may not be able to understand it despite memorising it, but you can memorise it easily if you understand it.

Interviewer: Could you memorise it first and then understand it later?

Interviewee: Yes! This is a process. S11

Interestingly, S11, who could see the positive aspect of mechanical memorisation, also expressed this sub-conception.

These participants recognised that comprehending was a crucial first step for memorising, since it facilitates the remembering of things and makes the memorisation process easier and smoother. Apparently S5's statement further indicated that it was necessary to obtain the meaning of things in order to remember them for a long time. Once the meanings of subject matters were obtained and digested, memorisation could be long-lasting. This implied that understanding played a crucial role in storing things and keeping them for a long time. Admittedly, as both S5 and S11 realised, memorisation could also be attained in a mechanical way without understanding, as the students in the first subcategory claimed. Being unable to understand something does not necessarily mean being unable to memorise. However, remembering without comprehending would cause repetitive re-memorisation.

Moreover, understanding could follow memorising. While S11 confirmed that she was able to make sense of things after remembering, she did not explain this any further. It might be that comprehending occurred gradually through the process of repetition. Nonetheless, as the only two students holding this subcategory, S5 and S11 placed emphasis on both remembering and sense making. From their perspective, learning could not stop at the stage of memorisation, understanding was equally important.

Since the students realised the significance of understanding in memorising things, they

could store the learning materials according to their understanding. The meaning seeking procedure enabled them to play an active role in learning. By contrast, those who mechanically remembered things might only passively learn by rote.

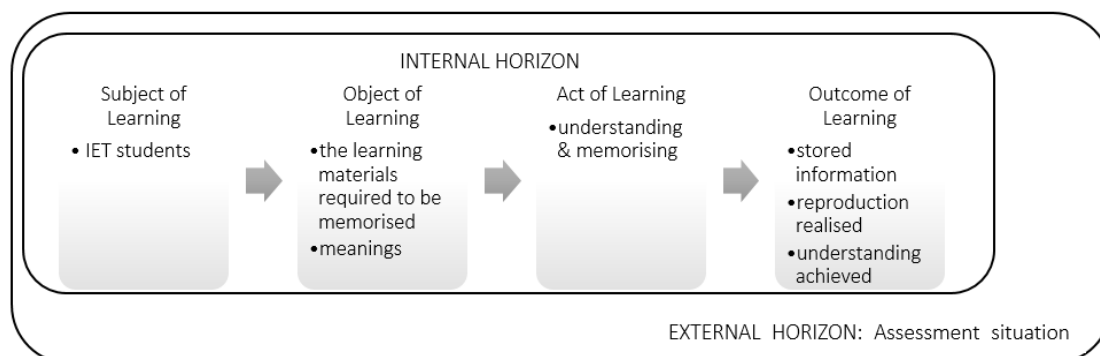


Figure 6.4 Learning as memorisation with understanding

The referential aspect of this subcategory is that memorisation should be built on or followed by understanding. In order to remember, the things have to be ‘digested’ and there needs to be an insight into their underlying meaning. Memorisation and understanding are not contradictory, rather they are intertwined. The act of understanding and memorising the learning materials is an obvious difference between this sub-conception and the previous one, as Figure 6.4 illustrates. Furthermore, the object of learning varies, as it may include not only the materials to be memorised, but the meanings inherent in the materials. Accordingly, in addition to information stored and reproduction attained, the outcome also involves understanding achieved.

6.5 Conception D. Application of knowledge for various purposes

Similar to the above, a distinction was made between application without understanding (D1) and understanding-based application (D2) for this conception. Once again, understanding serves as a watershed to divide the two.

6.5.1 Conception D1. Application without understanding

This study was conducted in the area of IET, and due to the features of this discipline (see Chapter 2), the interviewees had to prepare for the future vocational requirements and thus they set a high value on the application aspect of the knowledge they had acquired. The students often referred to the Chinese idiom 'Xue Yi Zhi Yong', which meant learning for the purpose of application. Some even argued that it was impossible to claim that something had been learned unless it could be applied in practice.

There are two different contexts for this sub-conception, that is, application can be situated in either an academic context or a real-life situation. The academic context concerns the application of what has been learned to complete some tasks in academic learning;

There was a project about leadership, and when I saw three words, I came up with lots of knowledge I'd learned in class and I found I could write a lot about it. S2

After (the lecturer) delivered some knowledge, he gave us some tasks and I was able to finish them. S5

Application in an academic context somewhat resembled the process of reproduction and recall, the scope of which was restricted to academic learning. However, the most obvious difference was that application here was not for any assessment purposes. Albeit Conception C also required the students to retrieve knowledge, the direct objective was to pass the test and obtain satisfactory remarks. By contrast, learners with this conception recalled the knowledge learned to address a current issue, such as an assignment or to solve an academic problem.

The university provided software called 'SIMTRADE' to help IET students to better apply

what had been taught in class. This was a virtual platform, composed of different sections, such as importer and exporter. The user acted as one of them and collaborated with others to close the deal. They often regarded 'SIMTRADE' as a game, as well as an opportunity to put information, facts, rules and procedures into practice. They gave it a positive evaluation, since it contextualised the knowledge they had learned. The students were able to better grasp the abstract and scattered pieces of knowledge delivered in the class.

It was rote learning in the past. The teacher taught and you listened to him/her and then you memorised it. There was no practice and you had to keep the procedures in mind. But I could finish the whole process based on the use of 'SIMTRADE'. When the lecturer talked about postal order in class, you could immediately know what sheets should be submitted and what matters should be noted. S11

However, application of knowledge acquired in real-life situations was more dominant. The majority of the participants understood the application as contextualising some concepts, models, procedures, rules and theories in life;

Although you have learned it, you cannot apply it, so this is equal to no learning. I learn something in order to apply it. For example, you come across some phenomena in life, and you can apply some economic principles immediately. You can only say you've learned something if you can apply it. Otherwise, it is only a tool for an exam and pieces of knowledge. S3

For example, when the news reports something, some concepts may suddenly come into your mind. Then you can be clear that you've mastered them. Perhaps you had no idea what the financial news was about before, but now you're able to understand it to some extent. S11

Because when you've grasped a piece of knowledge, it means you'll never forget it and you can apply it skilfully on any occasion without feeling nervous or confused. S12

I think that, when you've learned something, you won't need to deliberately learn it again in your future work. As there's something already in your head, you can apply it. S13

Some of my relatives at home are working and they often talk about their job while they are chatting. The conversation may contain certain knowledge, such as accounting and management, which we've been taught in class. If I'm clear about what they are saying, it means I've learned it. S14

While analysing some issues, you may discover that you can apply some knowledge taught in class very skilfully. S15

For example, in the past when I watched the news, I went on to read the comments because I didn't know the meaning. The comments helped me to analyse it. But now I can use the knowledge I've already learned to analyse it independently. S20

The scope of this subcategory had been enlarged to a great extent. In the previous conception, the reproduction or recall was confined to a very narrow assessment situation, for example, a series of exams or other forms of evaluation. However, students in this category stressed the ability to utilise the knowledge (facts, procedures, models, rules, theories, etc.) in a wide range of circumstances in their lives. The transcripts showed that a high proportion of participants believed application to be a reactive process, which could be exemplified by some occasional phenomena, such as watching news (S11, S20) and analysing subject-related issues (S15) and chatting (S14).

These incidents stimulated and reminded students of something they had learned in the classroom. They would then evaluate the context and the appropriateness of the use of certain models, theories and procedures and then fit them in the incidents. S12 stated that it would be ideal to apply what had been learned very skilfully on any occasion without feeling nervous or confused.

From a temporal perspective, the participants believed that the application not only occurred currently as they were studying, but it was also important for prospective work; in other words, knowledge may be applied both contemporarily and in the future, which would place them in a better position in their future career.

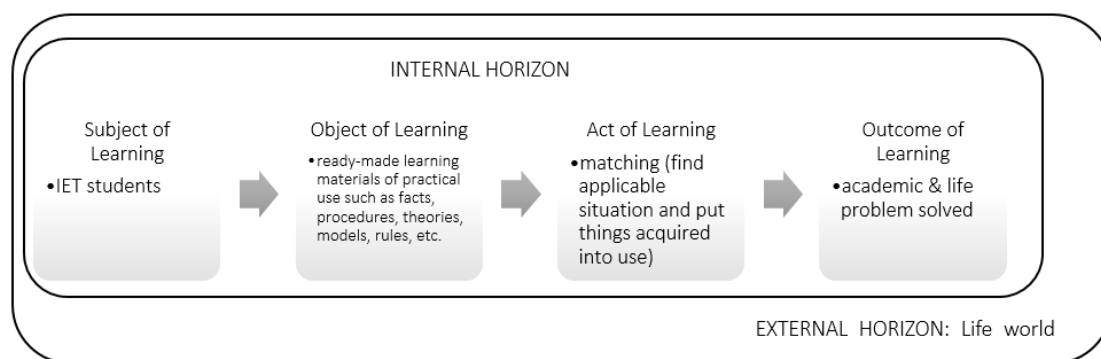


Figure 6.5 Learning as application without understanding

The meaning aspect for this subcategory refers to the ability of using what has been learned to achieve both academic and practical aims. As Figure 6.5 demonstrates, the object of learning is ready-made materials such as facts, procedures, theories, models, rules and information. The intention, or the expected outcome for applying is to contextualise things learned and further solve problems students encountered in both academic learning and real life situation. Nonetheless students tended to view applying knowledge as matching, i.e., finding applicable situations and putting things acquired into use, while the process of understanding seemed to be unclear. The participants focused on retrieving something they had learned and using it in a variety of situations. Therefore, the internal horizon consists of the students, the act of matching, the situations where application is needed, and things such as facts, procedures, theories,

etc. that can be used. Although the situations are complex, the external horizon may be characterised as life world, which includes both academic situation (knowledge obtained through courses in university) and non-academic learning situation (events and experiences that happen to students in daily life).

6.5.2 Conception D2. Understanding-based application

While most of the participants failed to associate application with understanding, a small number of participants explicitly expressed that application meant to apply procedures, facts and theories to either tasks or in real-life situations based on understanding. Understanding, or meaning-seeking, as they saw it, was a crucial precondition for application. The IET students with this conception tended to integrate comprehending and applying and view them as inseparable. Something could not be applied until the applicant knew the meaning of what had been learned. The students believed that authentic understanding could be demonstrated or represented by applying.

The students in this subcategory inserted a critical intermediary between acquiring and adopting (applying) – understanding. In their opinion, the process should be ‘acquisition – understanding – application’. Their concerns were both sense making and how to use. Acquisition does not equal understanding, and there ought to be a sense making or comprehending process before using. The students with this sub-conception took a more active role in learning, as they attempt to explore the underlying meanings beneath the superficial texts and facts.

For example, you understand the knowledge and then you can apply it to other places. Then you must have grasped it, you understand it. S4

Be clear about what it means and then you can apply it. By the time you

understand these theories, you can truly understand how they came about and how to apply them. S10

If I understand something, I can apply it or use it as an analytical tool in daily life. S18

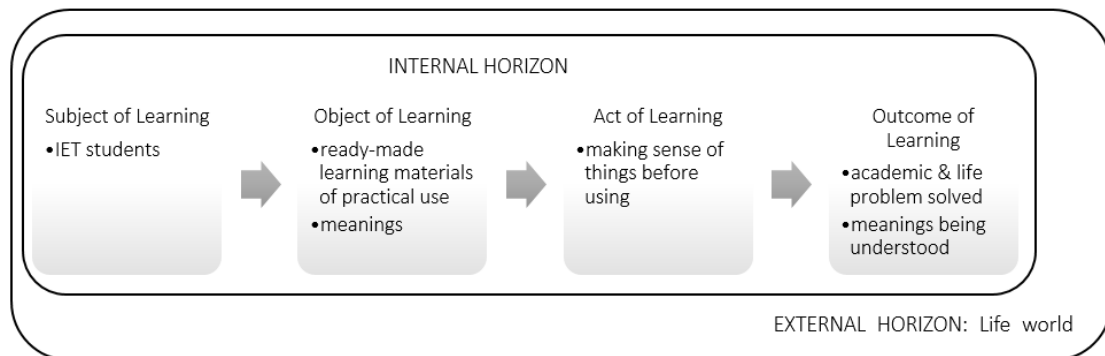


Figure 6.6 Learning as understanding-based application

The referential aspect of this subcategory is that students are able to utilise knowledge, facts, procedures, information, etc. for various purposes on the condition that they comprehend the underlying meaning. Thus, the students understand something before applying it. The object of learning somewhat varies (Figure 6.6), as it encompasses not only the ready-made facts, procedures, theories, models, rules and theories, but also the potential intrinsic meanings sought by the learners. Accordingly, the act of learning for this sub-conception is understanding meanings before applying knowledge and information, i.e. application is built on sense making. This is an important difference between this sub-conception and the previous one. As for the expected outcome, in addition to solving the problems encountered in academic learning and life, the meanings inherent in the learning materials are also apprehended.

6.6 Conception E. Making sense of the knowledge acquired

The focus of this conception was the underlying meanings beneath the knowledge and

information. Learners would not settle for some rather superficial facts, theories and models, but wanted to explore, for instance, how an equation came about, the logic inside the theory and the mechanism between A and B. Understanding in this category is viewed as a theme to be focused on and further explored.

With this conception, the students usually had a strong motive to explore the rationales and principles within the knowledge system. Their role in this conception was active, which implied that they were engaged with learning in terms of comprehending the underpinning logic, origins, relationships and mechanisms, and it was less likely that this was forced by lecturers or external assessments.

Understanding was an important feature of these students' learning. Many of them described understanding as knowing the meaning of models, theories and graphs;

Take a graph for example, (I should know) what it means if it goes up or down and what the axes represent. S9

That is, for example, the origin, process and outcome of the issue, and who has posited what ideas. S11

You can understand what the lecturer has taught in class. Perhaps it's only a sentence, but now you can understand the underlying meaning or something. S17

I feel that understanding should be deeper. If you understand something, maybe you're an expert in this area. [...] I don't think understanding is superficial. [...] If the lecturer didn't explain something, I might just get the literal meaning, but it was truly different when the lecturer explained it. S18

It relates to understanding the relationship between the two, what it means, what it refers to. S22

Understanding for these students was a process starting at the surface and then going underneath. The surface referred to something very visible, for example, a sentence or a theory that needed to be learned. 'Underneath' included things that were invisible such as the mechanism of production, the original underlying meaning, the logic, and the potential relationship between seemingly discrete pieces of knowledge. These elements did not all exist at the superficial level; they needed to be examined and explored further. As some of the participants said, understanding should be in-depth to avoid only obtaining the literal meaning and hovering over the surface.

The set of data clearly illustrated that a meaning-making process occurred within and between distinct courses and subjects. The participants frequently used the Chinese idioms 'Rong Hui Guan Tong' or 'Chu Lei Pang Tong' to name it, which means bringing knowledge together to achieve a thorough and better understanding of the subject matter. They made a connection between the present learning materials and previous experience, between various curricula and between diverse disciplines. Two of the 23 students attempted to make a connection between parts of a certain subject and between different subjects;

Because I don't think the curricula are separated. For example, although it seems that accounting and economics are different subjects, there must be some relationship between them. Even applied psychology is related to economics. For example, if I'm interested in economics and I study it very deeply, maybe I could learn a little psychology and accounting. I think it would be possible to become a great master if a subject could be learned with the help of knowledge from other disciplines. S9

It is strange that, when you take other courses, you may always link them

to the particular course you've learned very well. I mean you always connect many courses with some courses you've learned really well. [...] I like one course I've taken. I've been taught some trade terms and how to sign a contract. Later when I learned some other courses such as international business law, (I found) some of the knowledge I've already learned in the previous course I like. [...] It easy to link them together. S22

Due to the comprehensive nature of the IET programme (see Chapter 2), the students were required to take a wide range of courses and most of them were interconnected. Therefore, it was quite normal that students had to draw knowledge from other relevant courses in order to comprehend the materials currently being learned. Some lecturers were even invited from other departments to teach these IET students.

It was evident from the above utterances that some seemingly unrelated knowledge of different academic domains could also be connected. As S9 stated, although psychology and accounting may appear to be completely unrelated, they could be interlinked to generate insight into both of them. The value of such interdisciplinary learning was an expanded horizon and insight. It may be reasonable to claim that an in-depth understanding could be achieved via interdisciplinary learning. Hence, S9's commented that it would be possible to become a great master if one could learn a subject by drawing knowledge from other disciplines.

The objects of learning, such as knowledge, information, theories and facts, were not deemed to be irrelevant to the learners. The students with this conception tended to process information like this: knowledge was delivered by the lecturers externally – learners received – learners made sense of knowledge by comparing and contrasting it with existing experience – learners assured that new knowledge became a new part of their knowledge system and was incorporated with their prior experience. The information being processed in this way led to the internalisation of the things learned.

Some IET students considered that understanding had an individualised feature and it might vary between different people. While the above excerpts indicated that learners were making efforts to seek for an objective and 'true' meaning imposed by the syllabus and lecturers, the following utterances demonstrated that a way of understanding something could be subjective and it might be beneficial to have such personal understanding. The personal aspect of understanding was stressed in this sense. But to have a personal view of something required these students to engage in learning wholeheartedly and play a very active role.

*I have a thorough understanding of this issue and I have my own opinion.
[...] and then I may actively collect some information and form my own view.*
S11

*If you want a high score you should present your own opinion, which is
different from that of others. Lecturers like that sort of thing.* S13

*Now I would extract the central idea of a paper and develop my own opinion
of it. I may summarise it in my own words or apply it somewhere else, or
convert it to my own knowledge.* S15

*Sometimes you are able to add new thoughts if you have your own opinions.
But I feel it's difficult to have my own view because I have only accumulated
a small amount of knowledge.* S17

*That is to say I can transform it into my own things [...] But if you just copy
the knowledge, it is others' knowledge. After considering it, you may find
out something conform to yourself. That is to say, you have to find your way
of understanding.* S19

According to the extracts, one had to find his/her unique way of comprehending

something (S19). However, it might not be easy to develop a view that was different from others'. S11 and S17 perceived that the key stage was knowledge accumulation. One required a quantitative increase of information to generate unique insights toward certain phenomena. Being exposed to different views inspired learners and fostered their abilities to evaluate and discriminate. On the other hand, accumulated knowledge also served as a target to compare with, since only through this comparison could one argue that he/she developed a view of his/her own. Searching and collecting information and knowledge might prevent one from duplicating another's work. The increase of knowledge and information was largely voluntary and self-motivated work for the students, which facilitated independent and extensive reading and thinking. Therefore learners were able to provide their individualised understanding of certain phenomena.

To develop a personal view and understanding was beneficial in many instances. For example, S13 claimed that the expressed unique point of view could draw the lecturer's attention and result in a high mark in exams. Furthermore S19's statement implied that an individualised view signified that the knowledge had been integrated into her own previous experience. The knowledge was no longer something external to the learner, rather it was internalised as part of her information system. The high-level engagement in learning and internalisation of knowledge was very obvious here.

The participants believed that there were two ways to demonstrate that they had understood something. Firstly, some maintained that doing exercises was an effective method. For example, one student said;

Understanding is to comprehend better by doing exercises. S13

Secondly, understanding may also be verified by the ability to explain something learned to others. Some of the participants mentioned that they were often asked to interpret theories and concepts to others for clarification. These students believed that

if they answered others' questions well, it demonstrated that they were clear about the fundamental meanings.

If you discuss some issues with classmates, you will know whether you have understood something. S6

I think (understanding) means that I am able to repeat it to somebody else, [...] that is, I can explain it like the lecturer does. S9

In my opinion, it's not the equations and theories that you can blurt out. In fact, I can understand it and I know how to use it and explain it to others effectively to enable others to obtain knowledge in this area through my explanation. This is one aspect of understanding I think. S23

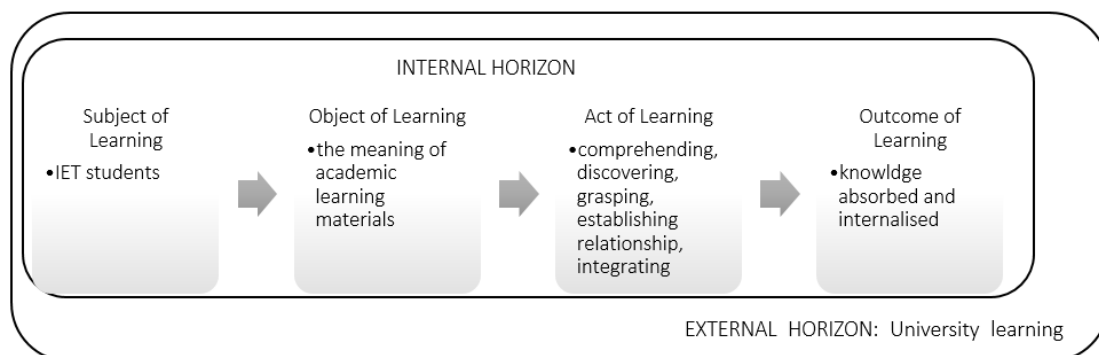


Figure 6.7 Learning as making sense of the knowledge acquired

The referential aspect of this conception is the comprehension of meanings, logic and mechanisms that underlie the text. In actively exploring the underpinning meaning inherent in the learning materials, the learners intend to generate insights and integrate the new knowledge into their prior experience. In this sense, Figure 6.7 illuminates that the students' object of learning no longer focuses on the surface like words and texts, but extends to the meaning beneath the materials. Their act of learning is becoming more active and profound such as understanding, comprehending, discovering, grasping, establishing a relationship (relating) and integrating. All the students'

discussions in this conception emphasised the learning situation, which means that this conception is restricted to the study situation. Thus, the external horizon is the academic learning context in the university.

6.7 Conception F. Gaining a new perspective to view reality

In this conception, the IET students considered learning to be the development of a new perspective or conceptual framework through which they could re-examine the things they encountered in their surrounding environment. Learning in this sense seemed to be a process that was more reality-orientated and less subject matter-orientated. The conception was a result of disciplinary knowledge learning, since the re-examination or re-interpretation might only occur via the acquisition of an economic perspective. That is, by gaining a discipline related perspective, they developed a new way of seeing.

Only two IET students sensed that learning helped to establish a new conceptual framework; more precisely, they were able to perceive some phenomena from an economic perspective as a result of accumulating, absorbing, and understanding economics-related knowledge. This economic perspective could be regarded as an economic mode of thought.

I think I've gained a lot while learning microeconomics because I can increasingly think about problems from an economic perspective. [...] then I think those economic concepts can be applied to real life. S1

I can analyse some problems from an economical perspective. [...] Since I'm learning economics, my perspective of seeing some hot economic issues and my personal view of them will be different from those who are learning other subjects. [...] After all, since it's economic knowledge that has been learned,

my way of looking at some hot issues must be different from that of those studying engineering and science. S15

The process was that students initially learned something, in this case IET-related knowledge, and then formed a particular perspective, in this case an economic perspective, to view things. These things referred to not only the academic learning context, but also the life situation as a whole. Students might not have thought of something in an economic way before starting their university study, yet as they accumulated specialised knowledge, their perspective of certain phenomena started to form. This was actually a process to develop and gain a new economic perspective or conceptual framework to help learners to view, understand and interpret reality. The development of this perspective was disciplinary sensitive, as S15 noticed. A relationship was thus found between disciplinary knowledge and perspective. In this case, the students acquired IET knowledge, therefore they saw things from an economic standpoint. Undoubtedly, as S15 stated, the economic perspective would not have been fostered if they were studying a totally different academic domain.

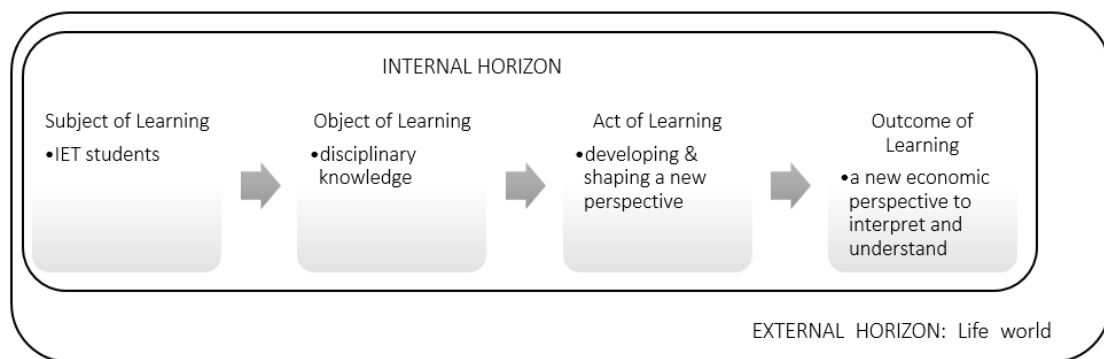


Figure 6.8 Learning as gaining a new perspective to view reality

The referential or the meaning aspect of this conception is that the learners develop or shape a new perspective to make sense of phenomena they encountered in both academic learning and life worlds. As Figure 6.8 illustrates, the object of learning is the disciplinary knowledge. During the discipline study, the IET students are becoming more capable of seeing, thinking and interpreting phenomena from an economic perspective.

Therefore, this newly-gained perspective is the outcome of learning. The newly obtained perspective may be utilised in both the university learning context and the real world. Thus, the external horizon for this conception is life world.

6.8 Conception G. Personal change and growth based on an extensive understanding of learning

A number of IET students investigated held a broad understanding of learning and learned from various phenomena around them, and thus they changed in terms of thoughts, attitudes, personalities and beliefs. Students regarded this process to be very positive, i.e. they became better people and more capable of doing something. In their views, learning was an experience of growth and improvement.

The interviewees clearly extended their definition of learning. They challenged the traditional academic learning framework by enlarging the scope of learning and relating it, not only to classroom activities and academic learning context, but also to many situations in real life. In this sense, they viewed learning as a pervasive and universal education phenomenon that could happen anywhere at any time, i.e. learning was not constrained by time and place. Notably all of these answers were in response to the question 'what do you mean by learning?'. The students were not asked to define academic and non-academic learning separately. Thus, it could be argued that IET students who held this conception had a comprehensive understanding of learning in the CFCRS programme. They also played a very active role in the process and enthusiastically became engaged in it, and this involvement enabled them to reflect on and learn something they believed to be of value to them;

I think learning is embodied in many things. For example, you watch other people doing something, and maybe their way of doing is worth learning.

S5

I think it is not all about (formal) learning. There are lots of opportunities to communicate with friends and lecturers. The university is semi-social, and it's important to communicate with people who are older than you and those who have already been employed. You should watch your words and behaviour. I think all of these are important to learn at university. S9

Learning includes everything. Even my chatting with you is learning. I'm learning your advantages. [...] Now learning goes beyond textbooks. You have to attend interviews and learn how to be interviewed, how to grasp others' needs. I think that all of these are learning. S13

I think learning is everywhere in life. [...] It all depends on how you discover it. S16

Learning goes beyond what the lecturers say and taking courses. I had never lived on campus before entering university. I have had to learn a lot about living independently, such as how to get along with others while living in a dorm. S19

Now I am at university, I find that learning is more than learning knowledge on campus. Taking the courses, reading notes, doing exercises and analysing data are a kind of learning. As a business student, I think it is also a sort of learning to buy stocks and shares and I can feel something while doing so. I often go to the national library and read books, which is also a kind of learning. I also have my hobbies such as ancient architecture ... and I learn something from them. [...] This is a kind of learning as well. [...] Learning can exist in every second of your life. S23

Firstly, the participants claimed that learning was something that exceeded the rigid

and inflexible environment of their university classroom. As university students, they viewed this phenomenon from a much wider perspective; more specifically, based on the above excerpts, learning could occur in many contexts. S5 deemed that imitating others' ways of doing things could constitute learning; however, it was conditional on deciding whether what was observed (others' behaviour) was of value. Having made a value judgment, in a sense, learning may occur by simulation. Nonetheless, S5 did not specify if this was a mechanical process (i.e. simply copying others' way of doing things) or reflective (i.e. forming one's exclusive way of doing things based on personal reflection).

Secondly, the importance of interpersonal communication was also valued, including getting along with roommates, fellow students, and even strangers they had never met before. S9 believed the university to be a society-like place, where students were learning how to communicate with other people by engaging in interpersonal communication during these four years. The learners were themselves, and as S9 said, the 'lecturers' from whom they learned could be older peers and in-service staff, and this process may enrich young students' communicational experience and skills.

Thirdly, the comments made by S13 and S23 illustrated that one could also learn from other activities beyond the campus. While these participants acknowledged the value of formal classroom-based learning, they also believed in the education that took place in other non-campus-based contexts or life-based learning. S13 recognised that she could learn how to successfully seek a job by attending interviews (social activity). S23 realised the importance of learning by practice (buying stocks and shares), a process that increased his understanding. S23 also expanded the physical locations or places of learning (studied somewhere else). S23's interest in ancient architecture (a hobby-related activity) also enabled him to learn something. Although some of the students could not explain what they had exactly learned sometimes, they did feel it was a process of learning and of educational value.

Meanwhile, these students' understanding of knowledge was also extended. In their opinion, knowledge might not only come from campus and formal education-related activities, but everything had an educational value. They tended to learn from everything they encountered as long as they detected the potential educational value. These valuable things were something the students lacked and could benefit students' growing as people. Such non-academic knowledge would be internalised and integrated to students' inner world to change them in various aspects.

Furthermore, the potential value of this conception was not only the expansion of learning contexts and the enriched knowledge acquired in every aspect of one's life and interaction with others, but the awareness that learning could take place anywhere and at any time. These youngsters had left secondary school and entered a colourful and diverse campus with more freedom, and the things they encountered there challenged their stereotypes, especially their understanding of learning. As a result, they had to draw lessons and learn from everything to become accustomed to the new environment. The act of learning involved a wide range of sophisticated behaviours such as observing, discovering, simulating, interacting, communicating, experiencing and reflecting. The expanded understanding of learning caused diverse scenarios and accordingly students had to adopt different actions.

The significant result of viewing, experiencing and perceiving learning as an extensive education phenomenon both inside and outside the HE context is students' changed attitudes, personalities, beliefs, thoughts, and behaviours. The terms students often used to describe this phenomenon were 'change', 'mature' and 'grow up', which was the focus of the meaning of this category. Some of the changes occurred to IET students unexpectedly, continuously and unconsciously. Furthermore most students were pleased to experience and witness these changes, since they were mainly positive. In this sense, learning changed them as people;

While you are learning you understand something, and this influences your

thoughts to some extent and may be applied to some aspects of your future life. S3

(Learning) improves my mentality to a large extent and I stop being immature. This is the most important thing. S4

I'm away from home. I've learned how to get along with my friends and how to live my life. [...] Even though I've been educated for so many years, I really don't remember much knowledge. The most important thing is the experience of learning. I am continually growing up and I've learned how to be a person (how to behave). The experience of learning is more important than the acquisition of knowledge. S7

I've become independent during the past four years, which means that I don't change myself, regardless of what others do. [...] I won't be influenced by anybody else. S10

After all, I've been away from home and I am more independent. I do lots of things I've never done before to be a better person. S12

I used to be very impatient in the past, but I have increasingly become calm. Moreover, I'm becoming more logical when doing things. I can see this when I do something and find how I have changed. S16

I'm becoming more mature (laugh). Having learned so many things at university, my thoughts are changing, becoming more comprehensive. I can plan for myself in a more comprehensive way. S19

I think about a lot of things differently from when I was in secondary school. I'm becoming more mature and able to think about the future. S21

I find myself being more and more independent. In the past I listened to my parents and classmates. Now, I realise that everyone has his/her own way and I should listen to myself. S22

Although we have received a foreign style of education, we are still based in China. We have all conceded that we want to go abroad. We've been taught like this, but we haven't applied it to the real world, so we want to see what this education has created. Years ago, when I was at high school, I totally disagreed with my parents who wanted me to study abroad. However, I find I've changed my ideas during the past two years. I want to go abroad, and so do my classmates. S23

All these changes were grounded in an extensive understanding of learning, as analysed above. They were generally embodied in two aspects, the first of which was often expressed using the vague word 'grown-up' (e.g. S7, S10), which could refer to maturity from a psychological perspective. For example, S16 said he had become calmer than before. The things the participants experienced and the people they encountered in HE stimulated them to reflect on their stereotypes and learn new things. As they said, some of them had become independent thinkers (e.g. S10, S12, S22), some had been transformed from teenagers to adults, and some had completely changed their old way of thinking (e.g. S4, S19, S21, S23). Furthermore, the students' social behaviour had been developed to a great extent. For example, S7 had learned how to get along with her peers and how to live her life independently, and S12 had to train herself to do many things she had never done before. Progress was also made by S19, who was able to plan her personal development, which she had found hard to accomplish in the past.

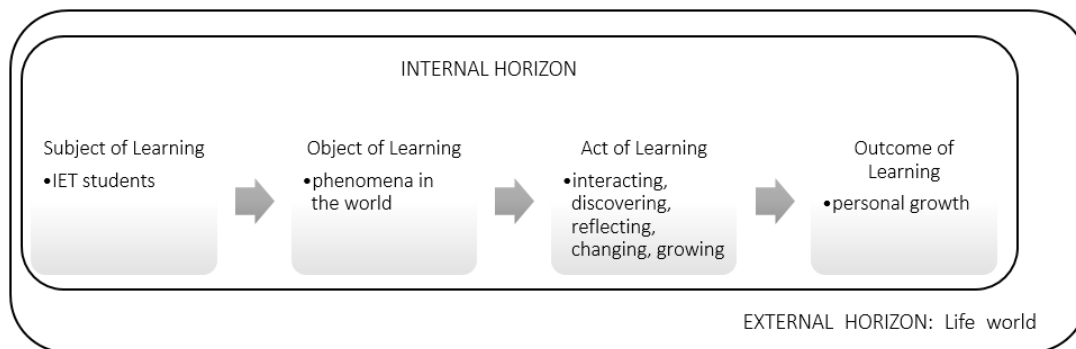


Figure 6.9 Learning as personal change and growth based on an extensive understanding of learning

The meaning aspect for the last conception is that learning means personal change and improvement in many aspects because of an expanded understanding of the phenomenon of learning. Students not only focus on formal educational settings, but also some informal learning contexts, both in their academic institution and their lives as a whole. Figure 6.9 shows that the object of learning is so extensive that it can only be epitomised as the phenomena in the world. The students believed in an expanded understanding of learning and insisted that knowledge was inherent in life and can be detected and learned. Likewise, the act of learning is also comprehensive and sophisticated such as interacting with other people, discovering, reflecting, changing and growing. The outcome of learning is personal growth and improvement. The external horizon is learners' life world, and this is perhaps the most extensive and sophisticated conception of learning.

6.9 Distribution of conceptions

The categories of conception are “the forms of understanding a certain phenomenon that individuals express in their speech” (Tynjälä, 1997, p.284), which means that individuals cannot be labelled or participants simply claimed to belong to a certain type. Since categories or conceptions are not mutually exclusive, multiple conceptions can be expressed at an individual level, which in fact, is a prevalent phenomenon in all phenomenographic studies.

Furthermore, Åkerlind et al. (2005), Barnacle (2005) and Marton and Pong (2005) maintain that phenomenographic researchers can neither connect the participants with particular conceptions nor identify the prevalence of conceptions within a group of people, because phenomenography “examines the conceptions of a collective group of people instead of analysing the understandings of individuals” (Irvin, 2006, p.292). Similarly, Greasley and Ashworth (2007) deem that what phenomenography can produce is the outcome space of conceptualisation, rather than the outcome space of types of individuals. Irvin (2006) further claims that this research approach can only create theoretical models and all other usages are beyond its scope.

Nevertheless, a number of researchers (Asikainen et al., 2013; Boulton-Lewis et al., 2008; Byrne & Flood, 2004; Eklund-Myrskog, 1998; Pillay & Boulton-Lewis, 2000; Töytäri et al., 2016; Tynjälä, 1997) have used this approach to quantify the proportion of certain conceptions found in their studies, and they even compare two or more groups based on these quantitative results. While acknowledging that the categories of description do not represent the types of interviewees investigated, Töytäri et al. (2016) note that the number of interviewees belonging to different categories can be counted. Despite that interviewees may express one or more conceptions, the popularity and distribution of each conception can be quantified (Töytäri et al., 2016).

It appears that Mann (2006) has provided a solution to this contradiction, which has been adopted in this study. The author aligned the transcripts with the five categories of description found to determine the distribution and confirm the variation, and asserted that;

this distribution is based on only the experiences discussed in the interviews. As such, the placement of the transcripts into the five categories only relates to the transcripts, and not to the subjects themselves. Just because the subjects related their experiences from one

particular category of description does not mean that they are always in that category. (Mann, 2006, p.129)

Undoubtedly, people’s conceptions of a phenomenon are likely to change over time, and although phenomenographic research is a way to understand them, it is only based on the participants’ comments in a given context at a particular time; in other words, it only reflects a static and specific conceptualisation. As such, the transcripts and the participants do not always match. Thus, it may be safer to connect the transcripts, rather than the participants, with the categories of description or conceptions to ascertain their general distribution and prevalence.

However, I equated the transcripts with the participants in this study to facilitate a convenient analysis and discussion. As stated above, there was no intention to align certain conceptions with specific individuals. Each conception was expressed by the students in a given context, but this does not necessarily mean they will always belong to that category because they may change from time to time. The research has captured some static conceptions by using phenomenography, and their distribution is shown in the table below (Table 6.1).

Conception	A	B	C1	C2	D1	D2	E	F	G
No. of students (transcripts)	19	20	8	2	16	3	9	2	19

Table 6.1 Number of students (transcripts) that subscribed to each conception of learning

According to Table 6.1, Conceptions A and B can be seen to be very common among all the 23 interviewees, which implies that a majority of IET students conceptualised learning in the context of the CFCRS programme as improving their language and increasing their specialised knowledge and mechanical memorisation. They also highly valued application without understanding (D1), although this was not believed to be a high-level conception. However, conceptions E and F have fewer proponents. The two sub-conceptions C2 and D2 were only expressed by very few participants. Surprisingly,

approximately 19 of them understood learning as personal change and growth based on an extensive understanding of learning, the highest level conception in this study.

The current research has found some similar conceptions to those indicated in other studies (e.g. Boulton-Lewis et al., 2008; Marton et al., 1993; Virtanen & Lindblom-Ylänne, 2010). According to the quantitative/qualitative learning conceptions division (see Chapter 3), it is safe to contend that Conceptions A, B, C1 and D1 can be categorised as quantitative, whereas Conceptions E, F and G are labelled as qualitative. The students with quantitative conceptions view “learning as being intimately related to the actual tasks of learning: they describe learning with a focus on gathering facts and information [...] and possibly on memorising them for later use” (Marton & Booth, 1997, p35). Those with qualitative conceptions conceptualise learning as “finding meaning through the medium of learning tasks: they see things in a new light; they relate them to their earlier experiences; they relate them to the world they live in; they see learning as change in oneself in some way” (Marton & Booth, 1997, p35). The two subcategories, C2 and D2, also relate to seeking meaning due to their pursuit of understanding; hence, they may be regarded as transformative conceptions. However, since both of these categories are sub-conceptions affiliated to the quantitative conceptions of memorisation and application respectively, it is difficult to determine the group to which they belong. Nevertheless, the amount of either subcategory is so small that it has little impact on the comparison.

According to the statistics attributed to the distribution of quantitative and qualitative learning conceptions division, it is evident that quantitative conceptions are more prevalent than qualitative ones; in other words, the students in this CFCS programme might be seen as lacking a deep understanding of their learning, and thus they experience learning in a superficial and less advanced way. Most of them expressed a vague definition of learning and were busy storing and applying information rather than focusing on exploring meanings, relating knowledge, and developing perspectives. Nonetheless, a surprising number of students (19) expressed the highest level

conception, which is unusual in other western studies.

6.10 The case studies

The phenomenographic analysis should be conducted at the collective level, but this does not necessarily mean that the individual level is ignored. Svensson (1997) contends that individual cases are useful in terms of clarifying categories of description and improving the validity and generalisability of phenomenographic studies:

It is important to realise that the general description of a conceptions in terms of a category does not stand by itself. We aim at differentiating the general to be able to find it in the concrete, not to separate it from the concrete as something in and by itself. This means that we have to consider descriptions of individual cases, not only as a basis for clarifying the meaning of the general category, but also as important in themselves. An important knowledge concerns the relation of the meaning of the general category to the individual cases. This is so from the perspective of generalisation and the use of the categories of description. The more extensively the role of the general in the specific case is described, the better is the validity and the basis for generalisation and theory development. (p. 170)

It was found that none of the student participants totally relied on just one learning conception, i.e. each of them expressed multiple ways of experiencing learning. The study aims to uncover the qualitatively different ways the IET students experienced their learning in the CFCRS programme as faithfully as possible, and the whole picture of their conceptions of learning should be authentically exhibited. To achieve better understanding of the participants' complexity in conceptions of learning and obtain a clearer picture of the characteristics of these participants, four interviewees in various

study stages have been picked up as cases.

6.10.1 Lou (S4)

Lou came from Zhejiang Province, where business was the dominant culture. His father was running an enterprise and wanted him to take over when he retired. This student was very pragmatic and came to the IET programme to learn something of practical.

Even though he was in a CFCRS programme, Lou did not explicitly see learning as improving linguistic abilities (Conception A). However, like many other participants, he emphasised Conception B and intended to take in specialised knowledge as much as possible and kept them in mind (Conception C).

Interviewer: What do you mean by learning?

Lou: You get some new knowledge from unfamiliar areas, or you get something new from familiar areas, this is what I call learning. It is all about new content.

Interviewer: What do you mean by new knowledge?

Lou: It is something you don't know.

Interviewer: How do you know when you have learned something?

Lou: Keep it in mind and never forget.

From his perspective, learning was to enrich one's knowledge and enable people to know more. He also acknowledged that people could obtain something new even from some familiar areas. Once learners touched on these new things, it was very important that they remember them firmly and this was the outcome of learning.

In Lou's opinion, a significant aim in learning is applying knowledge. As stated, this student has been brought up in an entrepreneurial family. He expected that the

specialised knowledge could help him to run business independently.

Interviewer: What do you want to achieve? What is your aim of learning?

Lou: Most people in our province are merchants who are operating enterprises. I want to learn something which can develop my commercial awareness and ability.

Interviewer: Could you give me an example?

Lou: For example, some marketing methods, which won't let me lose money.

Moreover, he intentionally connected understanding with applying and stated that understanding could be verified via applying flexibly (Conception D2).

Interviewer: What is understanding?

Lou: For example, you understand the knowledge and then you can apply it to other places. Then it means you grasp this piece of knowledge and you understand it.

Meanwhile, this junior student also held Conception G, as he believed that he was more mature and became mentally more developed.

Interviewer: What have you gained during learning?

Lou: It's hard to say ... I feel that learning improves my mentality to a large extent and I stop being immature. This is the most important.

6.10.2 Han (S16)

The IET programme was not Han's first choice, but he agreed to be redistributed. With the help of online searching, his parents considered that learning economy would be

promising.

Being in the third year of study, Han believed that learning was to improve his English abilities.

Our linguistic abilities have been enhanced. Throughout these four years, we've been learning English all the times and contacting with the Australian teachers. I did not do well in English when I was a senior high school student, but now I'm making good progress.

Interestingly, he intentionally discriminated memorising from understanding and believed that the former could be better than the latter.

Both memorisation and understanding are methods, and the results they actually achieve are similar. Good memorisation may be better than understanding. If you can memorise it well, that would be better than understanding.

As a senior student, he also actively engaged in various activities in the campus, which resulted in Conception G. In fact, Han spent much time talking about his experience of participating in a non-government organisation named AIESEC and acting as a volunteer.

The AIESEC enables me to grow mature. I used to be introverted and lack of self-confidence in the past and unwilling to talk with others. I would not be willing to join in such an activity in the past. But now I'm brave enough to do so. My mother has noticed that I've changed a lot. I'm now unafraid to lose face, I think it's nothing. Moreover, the biggest change for me is that I can make plans independently. I often spend time planning for the things I have to do every day. Being the vice-president of the AIESEC at this university, I need to manage my departments. So I have to be logic,

because in order to ask others to do something you have to be logical.

It is certain that this student viewed doing things in the AIESEC as an opportunity of learning. The things and people encountered changed him to a large extent. He was growing to be more patient and logical, and believed that learning depended on how one discovered it. Thus he intentionally expanded his understanding of learning.

Interviewer: What do you mean by learning?

Han: I think learning is everywhere in life. Like the activities I've mentioned, I can learning something about human nature. Taking courses is learning specialised knowledge. Communicating with classmates may let you learn the knowledge of interpersonal communication. It all depends on how you discover it.

6.10.3 Tang (S22)

Tang had a strong 'financial' family background: her father worked for a bank and mother worked in a finance department. Moreover, Tang's mother was once studying at the investigated university and liked it very much. Therefore, the parents selected this IET programme for her.

Being in the final year of her undergraduate study, Tang's ways of seeing learning were complex. Although she was a senior student, she also possessed a number of less powerful conceptions such as A, B and C1.

Interviewer: What do you mean by learning?

Tang: Learning is ... I'm a student for exams. How should I say ... Learning is good and I like it. I usually motivate myself by means of exams.

Interviewer: What if you don't know the meaning of it?

Tang: I will memorise it. I have no choice I can only think of that as a kind of law or something and I remember it like that. There is no deep understanding.

Interviewer: What have you gained during learning?

Tang: I've gained lots of knowledge now and become an expert (laugh). I've won quite a lot of prizes, including many kinds of scholarship and even national prize.

Based on the transcripts, it was obvious that she was a highly assessment-motivated student and often performed extremely well in various assessment situations. It is quite clear that Tang is a student who intensively, perhaps excessively and narrowly, focuses herself on the academic performance and specialised knowledge.

Tang was also a smart student who could see and build up the relationship between different courses taken and various areas of knowledge. Perhaps it is this conception that makes her so successful in learning.

Interviewer: How do you know when you have learned something?

Tang: It is strange that when you take other courses, you may always link them to the particular course you learn very well. I mean you always connect many courses with some courses you've learned really well. I once took a course named Practice of Import and Export and I viewed it as an introductory course to the IET. We learned lots of things in that course, including trade terms, how to sign a contract and procedures. When learning more advanced courses such as International Business Law, I often refer back to the knowledge acquired in Practice of Import and Export.

While she was very proud of the academic success, she talked less about the highest level learning conception G. She only expressed that she was becoming more independent and willing to follow her personal opinion.

Interviewer: What else have you gained during learning?

Tang: I find myself being more and more independent. In the past I listened to my parents and classmates. Now, I realise that everyone has his/her own way and I should listen to myself.

6.10.4 Ran (S23)

I was impressed by Ran, whose understanding of learning was so extensive and comprehensive. It is unusual that such a young student has this profound understanding and insight in learning. Although he was young, Ran looked very steady, mature and thoughtful. I was surprised to know that he has a hobby of appreciating ancient architecture.

Ran was a second-year IET student, who was also the last participant in my interview. Like many others, he also expressed a number of less advanced ways of experiencing learning (A, B and D1).

Interviewer: How do you know when you have learned something?

Ran: It's easy. For example, when the teacher ask a question in the class, you know it and can answer. This means you learn it.

Interviewer: What do you mean by 'having learnt'?

Ran: I think the term 'having learnt' can only be represented by being able to apply. You cannot grasp all the meaning it has, nor can you sense the internal things. If you have learnt it, you could only apply it.

In contrast to Tang who said much about her academic performance, Ran spent much time talking about more sophisticated conceptions. He saw understanding as being able to effectively explain something to others so that they could get the meanings. This is a way to demonstrate one has comprehended and grasped the idea of things.

Interviewer: What is understanding?

Ran: In my opinion, it's not the equations and theories that you can blurt out. In fact, I can understand it and I know how to use it and explain it to others effectively to enable others to obtain knowledge in this area through my explanation. This is one aspect of understanding I think. In other words, understanding means I can help someone out by getting someone to grasp the economic knowledge and let them feel good.

Furthermore, his definition of learning was very extensive, as he was able to learn from some several activities in his life such as buying stocks, reading outside the campus, appreciating ancient buildings and even the interview itself.

Interviewer: What do you mean by learning?

Ran: When I was in the high school, learning was taking courses, doing assignments, attending examinations and getting good grades. Now I am at university, I find that learning is more than learning knowledge on campus. Taking the courses, reading notes, doing exercises and analysing data are a kind of learning. As a business student, I think it is also a sort of learning to buy stocks and shares and I can feel something while doing so. I often go to the national library and read books, which is also a kind of learning. I also have my hobbies such as ancient architecture. I visit the Summer Palace and The Imperial Palace every weekend and I learn something from it. This is a kind of learning as well. Now my way of defining learning is different from that of in the past. Learning can exist in

every second of your life. Like this time I'm talking with you, maybe I can understand myself deeper after our chatting, this is learning as well.

All of these changed his attitudes and thoughts. Therefore, this participant held a very comprehensive range of learning conceptions.

The four cases reveal the complexity in students' conceptions of learning. It is found that there is no fixed and expected patterns or clustering of conceptions. Year one and two students may possess high-level learning conceptions, whereas year three and four students can hold less advanced ways of experiencing. However, it is certain that all the participants express multiple learning conceptions, and none of a single conception can represent an individual's holistic learning experience.

6.11 Chapter summary

Seven main learning conceptions are articulated in this chapter, namely (A) language improvement, (B) increasing new knowledge, (C) memorising and reproducing when necessary, (D) application of knowledge for various purposes, (E) making sense of the knowledge acquired, (F) gaining a new perspective to view reality, and (G) personal change and growth based on an extensive understanding of learning. Moreover, four sub-conceptions are identified in conceptions C (memorisation without/with understanding) and D (application without understanding, understanding-based application). The referential and structural aspects of these conceptions of learning are also identified using the theoretical framework determined and presented in Chapter 4. The findings presented in this chapter are summarised in the table below (Table 6.2).

Conceptions	Referential Aspect	Structural Aspect	
		Internal Horizon	External Horizon

A. Learning as language improvement	Learning is to improve linguistic abilities.	IET students; English learning-related elements such as English materials and courses; the act of speaking, reading, listening, writing; improved linguistic abilities	University learning context
B. Learning as increase of new knowledge	Learning refers to the quantitative increase of new knowledge.	IET students; new learning materials; the act of receiving; putting something into head; increased information and knowledge	University learning context
C1. Learning as memorisation without understanding	Learning is remembering information mechanically and recalling it when necessary.	IET students; the learning materials required to be memorised; the act of mechanical memorisation (rote learning); information stored and reproduction achieved	The situation of exams and other assessments where reproduction is needed
C2. Learning as memorisation with understanding	Memorising something based on or followed by understanding.	IET students; the learning materials required to be memorised; meanings inherent in the materials; the act of understanding and memorising; information stored, reproduction attained, understanding achieved	The situation of exams and other assessments where reproduction is needed
D1. Application without understanding	Learning is using what has been learnt to achieve both academic and practical aims.	IET students; ready-made learning materials of practical use such as facts, procedures, theories, models, rules, etc.; the act of matching (finding	Life world

		applicable situation and putting things acquired into use); academic and life problems solved	
D2. Application based on understanding	Comprehending the underlying meaning of knowledge, facts, procedures, information, etc. before using them for diverse purposes.	IET students; ready-made learning materials of practical use such as facts, procedures, theories, models, rules, etc., meanings; the act of making sense of things before using them; academic and life problems solved	Life world
E. Learning as making sense of the knowledge acquired	Learning is to comprehend the meanings, logic and mechanisms that underlie the knowledge and information.	IET students; the meaning of academic learning materials; the act of comprehending, discovering, grasping, establishing relationship, integrating; knowledge absorbed and internalised	University learning context
F. Learning as gaining a new perspective to view reality	Learning means developing a new perspective to make sense of phenomena encountered in both academic learning and life world.	IET students; disciplinary knowledge; the act of developing and shaping a new perspective; a new economic perspective to interpret and understand	Life world
G. Learning as personal change and growth based on an extensive understanding of learning	Learning means personal change and improvement in many aspects because of a widened understanding of the phenomenon of learning	IET students; phenomena in the world; the act of interacting, discovering, reflecting, changing, growing; personal change and growth	Life world

Table 6.2 Research findings of this study

Additionally, this chapter goes a step further by offering a distribution of conceptions. The succinct table demonstrates that quantitative learning conceptions are more dominant among the IET students investigated in this study. The case studies in this chapter helps to illuminate the characteristics of these participants and the complexity in conceptions of learning.

While this chapter has intensively focused on presenting the findings in relation to the referential/structural framework, each individual conception is further interpreted and compared with existing literature in the next chapter. The connections between the conceptions are also addressed in the following chapter.

Chapter 7. Discussion

7.1 Introduction

The chapter deals with the second research question posed at the outset of the thesis: How are the various conceptions of learning found in this study related? The establishment of the relationship is built on in-depth analysis of each learning conception, therefore it is necessary to examine the key constituents of conceptions in relation to the existing literature. This analytical and comparative process not only highlights the similarities and differences between the conceptions found in this study and in the literature, but also facilitates the clarification of the relationship between various ways of experiencing or understanding learning.

The student participants' utterances and quotes are used here to better assist understanding of the analyses of each conception. They are concise and to the point and not intended as simple repetitions. The revisiting of utterances demonstrates that the discussion and analysis in this chapter is firmly built upon the empirical evidence and grounded in the data collected, not the researcher's personal experience or existing theories. Without these, the discussion might lose its empirical underpinnings. Furthermore the selected quotes also show how the key elements within each conception are expressed by the students, which may help to understand the analytical process. Like the previous chapter, the utterances in this chapter are also presented by using italics to differentiate them from the scholars' quotes.

The potential relationship can be further confirmed by exploring and probing the dimensions of variation embodied in conceptions. Five predominant variables that are inherent in all the conceptions are highlighted, enabling the structural relationship between these conceptions to be identified and thus the outcome space is finally constructed. It becomes obvious that, while some ways of experiencing learning at

lower levels are narrow and limited, others appear to be more sophisticated and inclusive and at a higher level.

7.2 Discussion of key findings

7.2.1 Conception A. Language improvement

The conception of viewing learning as language improvement is contextually sensitive and may be exclusive to this research. None of the existing research has uncovered this way of experiencing learning.

There are two reasons for establishing English improvement as the initial conception, the most predominant of which is the narrow theme or focus. In analysing the constituents, it is evident that the focal awareness of the participants who held this conception is very limited. The students merely concentrated on a very small section of their whole learning in the university, that is, their attention was paid to the improvement of English from four aspects: listening, speaking, reading and writing. The learners believed the CFCRS programme to be a good place to practise English.

It was mainly English, and then knowledge of finance ... S7

I came here to study English well ... S9

The second is the implicitness of the concept of learning. The meaning of learning was not further explored, and the participants had no intention of explaining their understanding of learning. These students often used verbs such as learn, improve and enhance to describe this conception, all of which appeared to be superficial, vague and implicit.

Students claim that it is taken for granted that choosing the CFCRS programme is an opportunity to improve their English, and as a result, a learning conception with limited focus and an implicit understanding of learning is generated.

7.2.2 Conception B. Increase of new knowledge

Marton et al. (1993, p.285) summarised some indicators of this conception as “quantitative, discrete character of knowledge (information), the collection, consumption and storing of ready-made pieces of knowledge (information)”.

The acquisition of knowledge was found to be a very common conception among all the participants. However, despite this prevalence, it cannot be regarded as being a deep and sophisticated way to experience learning, because the “main feature of it is that people do not qualify or elaborate the meaning of this concept” (Säljö, 1979a, p.447) and the interviewees merely provided a cluster of words used interchangeably for the word ‘learning’ (Säljö, 1979c). The keyword ‘knowledge’ was not explained further in all the responses (Marton et al., 1993) as well. According to van Rossum and Hamer (2010, p.3), students holding this conception do not consider learning as the object of reflection, instead “it is simply something ‘everybody does’, like breathing”. Thus Dahlin (1999) deems this conception to be very simple and undifferentiated.

The most prominent feature of this basic conception of learning could be described as vague and taken-for-granted (Boulton-Lewis et al., 2004, 2008; Säljö, 1979b). When analysing the taken-for-granted perspective, Säljö (1979a, p.446) writes;

In the 'taken-for-granted' perspective learning is described in very absolute terms as an essentially reproductive memorising activity where the task of the learner is perceived of as that of 'getting all the facts into your head'. [...] Furthermore, it seems as if in this 'taken-for-granted'

perspective learning and knowledge are perceived as congruent. Thus, people tend to equate knowledge with what might be called 'discrete units of information' or simply 'facts', and learning is consequently the transfer of these discrete units into the head of the learner. The point to be emphasised, however, is that this reproductive conception of learning appears self-evident and unproblematic.

According to the above statement, a 'taken-for-granted' attitude enables students to perceive learning as self-evident and unproblematic, which may lead to the adoption of very superficial activities. Säljö's (1979a) 'getting all the facts into your head' is similar to the 'consumption metaphor' (Marton et al., 1993), which implies a series of actions, such as receiving, picking up, collecting, taking in, and storing information. The result of these activities is information or facts in a very fragmented form.

In line with the quantitative-qualitative division as described in Chapter 3, it is evident that this conception has strong features of quantitative learning, since "students view learning as consisting predominantly of the acquisition of knowledge in the form of discrete pieces of information" (Byrne & Flood, 2004, p.27). Nothing is more important to them than the quantitative aggregation of information. Students who had this conception made no attempt to relate and integrate the fragmented information acquired (Pillay & Boulton-Lewis, 2000). They perceived learning as being external and something that was just imposed on them by lecturers (Ramsden, 1992). For example, S8 expressed that she increased her knowledge on concrete theories and information and this meant learning.

Reading a book is learning, taking courses is learning. (Learning is) studying something you didn't know about before. I knew nothing about politics and economics, but now I've learned some theories and what crises are all about. So I've really learned something. S8

The relationship between this conception and the remaining ones is not separate from them due to its generality. As Marton et al. (1993, p.284) state;

It [the increase of knowledge] is a general conceptualisation of learning that covers all the different conceptions. This is because one of the key words in the subject's answer is 'learning', which is exactly what the question is about, [...] the subject's answer does not differentiate between different conceptions.

Likewise, Boulton-Lewis et al. (2004, p.99) contend that this conception demonstrates "a general, inclusive, undifferentiated conceptualisation of learning which may include aspects of all the other conceptions".

On the other hand, its inclusivity and generality lays a foundation for other conceptions. Both Säljö (1979b) and Marton et al. (1993) establish this current conception as the initial category in their research, which set the scene for many subsequent studies;

We want to suggest that this is the conception from which all the other conceptions develop. [...] Such a general characterisation of learning, without any distinctive characteristics, is thus included by Säljö in the first category of description and we follow his practice here. (Marton et al., 1993, p.284)

It is easy to identify an expanded theme for this category by comparing this conception with the former one, where the participants merely focused on the linguistic area. Nonetheless all the students fail to relate acquisition of knowledge to the life situation as a whole, that is, their expressions of this conception are confined to the academic learning context. This is different from the conception of 'increasing one's knowledge' identified by Marton et al. (1993), the external horizon of which is set within people's life world.

7.2.3 Conception C. Memorising and reproducing when necessary, particularly for exams

As noted by Byrne and Flood (2004, p.27), this conception differentiates itself from Conception B and does not take learning for granted, since it has a new functional aspect: “[the conception] views learning as the acquisition and memorisation of knowledge with the intention of reproducing it for assessment purposes”. The participants’ responses echoed this argument, since they all believed that the function of learning was always to reproduce and recall knowledge for exams. In this sense, learning is “also described in quantitative terms and often as rote learning for reproduction or repeated practice for learning” (Boulton-Lewis et al., 2008, p.124).

For students with this conception, assessment is a strong external force and also a significant motivation for learning.

I’m a student for exams. Learning is good and I like it. I usually motivate myself by means of exams. S22

The students’ academic engagement “is determined by the amount and type of information needed to get a particular grade” (Franz et al., 1996, p.330). As Franz et al. (1996, p.330) contend, the characteristic of this conception is that “learning is about absorbing unit-specific content; it is achieved through rehearsal and it is demonstrated through the ability to regurgitate information when required”. Therefore, learning is often viewed in quantitative terms, “as an exact (rote) reproduction of the learning material, and as being orientated toward some kind of test or performance” (Marton et al., 1993, p.286).

Asikainen et al. (2013, p.39) observe that those who have this conception “perceive the

learning material on the basis of the goal set by the lecturer and to remember it as it was assigned” rather than “actively construct[ing] the connections between different concepts by themselves in this process”. They can be said to be the receivers of knowledge due to their passive role in the learning process. The learners “are not called upon to know, but to memorise the contents narrated by the lecturer. Nor do the students practice any act of cognition, since the object towards which that act should be directed is the property of the lecturer rather than a medium evoking the critical reflection of both lecturer and students” (Freire, 2000, p.80).

Entwistle and Entwistle (2003, p.36) contend that memorisation is a “largely mechanical, unreflective process of forcing knowledge into memory by conscious effort”, while Dahlin and Regmi (1997) claim that rote learning, especially the memorisation for examinations, could only be short-term.

[mechanical memorisation] is a strategy used when the learning material is not comprehended, or only partially comprehended. It also seems to be used when the content is not interesting enough to engage the learner's full attention. In this case, knowledge cannot be assimilated into memory, but words can be put "into the throat". A mechanical memory of sequences of words is established for examination purposes, but is forgotten after it has fulfilled this function [...] (Dahlin & Regmi, 1997, p.478)

The act of repetition plays a vital role in mechanical memorisation, since “[r]epeated reading, writing and/or practising is a well-nigh necessary and unavoidable part of rote learning” (Dahlin & Regmi, 1997, p.481). In many cases, as some of the participants said, they had to read and recite the learning materials more than once to store and keep them alive in their memory to fulfil external assessment requirements.

I like to memorise it once and again. S12

According to the cited authors (Dahlin & Regmi, 1997; Entwistle & Entwistle, 2003; Franz et al., 1996; Freire, 2000; Marton et al., 1993), the terms that can be summarised to depict this conception, such as rote learning, recalling and reproducing, quantitative nature, assessment and repetition, appear to indicate a kind of learning that few western learners would advocate. The attitude toward memorisation is evidently negative in the western culture, as summarised by Dahlin and Regmi (1997, p.477);

In the Western context of learning and education, "memorising" something and learning it "by heart" or "parrot-fashion" often carry almost identical meanings. Memorising is often considered a bad way of learning, necessary perhaps for school examinations but worthless in terms of understanding.

Nonetheless, the Chinese undergraduates in the present research managed to see the positive aspect of it. S11 posed a very interesting argument that understanding was not everything and she often had to remember something.

For example I understand a concept in my own way, but I cannot express it very accurately. [...] the exam requires me to explain a concept, so I need to memorise it and recall it when necessary. After all, understanding is not everything; you have to remember some things. S11

It can be seen from this perspective that there is a gap between what has been understood and expressing it when necessary. It is often the case that the content of learning can be comprehended, but not linguistically expressed in an accurate and technical way. There is a great deal of terminology and a vast number of theories in the discipline of IET, which can be understood through certain methods; however, there seems to be no other way to acquire knowledge unless students remember it mechanically.

Nevertheless the problem with this conception is that learners may find it difficult to adopt strategies that could result in high-quality learning if they simply and superficially view learning as being a process of knowledge accumulation and memorisation (Prosser & Trigwell, 1997).

Memorisation and understanding are often perceived as contradictory by western learners, as claimed by Purdie and Hattie (2002, p.18);

Participants in studies conducted in Western educational contexts have generally equated rote learning with memorisation, and these processes have been clearly distinguished from the process of understanding. Memorisation and understanding are viewed as separate entities that occur at different points in time.

However, students in culturally different contexts such as China may not simply equate memorisation with remembering things mechanically. Marton et al. (2005, p.292) observe that “students from China are very much inclined toward memorisation, on the one hand, and students from China are very successful in their studies, on the other”. Therefore, this is called the ‘paradox of Chinese learners’, namely, how can these students be so successful when they only memorise everything? The answer may lie in Conception C2. In this study, the Chinese IET students with this subcategory seemed to coordinate memorisation and understanding well and did not perceive them as completely contradictory.

When analysing Conception C2, it is not difficult to find that, firstly, some IET students considered memorisation could be based on understanding, which implies that understanding plays a crucial role while remembering things. Marton et al. (2005, p.306) consider this to be “memorisation follows after understanding” or meaningful

memorisation. Understanding represents a meaning-seeking procedure before memorisation and it makes remembering things easier. Moreover, from the interviewees' perspective, the stored knowledge can be kept for a long time as long as they comprehend the meaning of it.

You may memorise something for a long time if you understand it. S5

Secondly, it is normal for these Chinese undergraduates to memorise mechanically and then understand gradually later, which has been labelled as memorising before understanding (Meyer, 2000).

Interviewer: Could you memorise it first and then understand it later?

Interviewee: Yes! This is a process. S11

This illustrates the reversal of the procedure discussed above. It may seem to be incomprehensible and unfeasible to many western learners, but appears to be normal for the Chinese learners. The inability to comprehend the exact meaning of something did not seem to prevent IET students from memorising, rather they reported that they were still able to keep it in mind; however, the results might not be ideal, because the memorised things could only be stored firmly by re-memorising once and again. Surprisingly, some students expressed their ability to perceive and grasp the idea of what had been remembered after constant repetition and mechanical memorisation. In this sense, understanding indeed occurs and sense making is facilitated by rehearsal. Thus, from the students' perspective, the understanding-memorising process is reversible (Marton, Wen & Nagle, 1996).

Byrne and Flood (2004, p.29) claim that "Asian students do not conceive memorisation and understanding as opposites, rather they see them as intertwined activities". From the participants' perspective, memorisation and understanding constitute a continuum, and it is meaning that unites them. Either way, the students are seeking for the

underlying meaning.

Entwistle and Entwistle (2003) note that the combination of memorisation and understanding can either be called 'deep memorising' by Tang (1991) or 'memorisation with understanding' by Marton, Dall'Alba and Tse (1996), Marton, Watkins and Tang (1997) and Purdie and Hattie (2002). The paradox of Chinese learners can be explained by the existence of various forms of memorisation identified by Meyer (2000, p.205), all of which are linked to deep-level learning;

The first form [...] is termed "memorising after understanding" and refers to committing to memory material whose meaning is understood or comprehended. The second and third forms respectively refer to "memorising with understanding" in which "understanding" is the organising principle for committing something to memory [...] and "repetition as an aid to understanding"- a process by which repetition [...] reveals deeper underlying meaning(s) of the object of study.

Similarly, Hattie (2002, p.18) is also able to see the complexity of memorisation as presented by the eastern learners, in particular the harmony between memorisation and understanding.

[Eastern] participants considered the relationship between memorising and understanding to be one in which there was a confluence of memorising and understanding rather than a separation of the processes. Each process was seen to contribute to the other. Distinctions that were made concerned differences within memorisation rather than between memorisation and understanding. Mechanical memorisation was distinguished from memorisation with understanding. Furthermore, within the notion of memorisation with understanding were two different views about the relationship: (a) it is easier to memorise or remember

what is already understood, and (b) understanding can be developed through memorisation.

Basically the classification made within memorising by Meyer (2000) and Purdie and Hattie (2002) corresponds well with the research findings in this study. The sequence of memorisation and understanding is reversible and the understanding of meaning plays a vital role in the process. While memorisation is generally believed to be a quantitative conception, the sub-conception of C2 found in this study illustrates that memorisation with understanding may also cover some aspects of qualitative conception.

7.2.4 Conception D. Application of knowledge for various purposes

Application refers to “retrieving and adapting what has been learned and using it in a wide variety of circumstances” (Byrne & Flood, 2004, p.27). Marton and Booth (1997, p.37) claim that this conception “has application in focus in addition to getting the knowledge and storing it”, and “the constraint that learning is confined to study situations has weakened, as the learner becomes prepared to consider the new acquisitions in other, as yet unspecified, contexts”. The students “value this process over the [...] inferior process of memorising only for (school) tests” (van Rossum & Hamer, 2010, p.4).

Conception D is different from both knowledge increase and memorisation, as Marton et al. (1993, p.288) contend that:

[...] the present conception [application] can be distinguished from conception A [increase of knowledge] through the emphasis on application and from conception B [memorisation and reproduction] through the fact that application does not mean exact reproduction for

test situations in school.

The participants with Conception B said that they paid attention to the process of putting something into their heads or the acquisition of information; however, they said nothing about what would happen next and it seemed that they just aimed to pick up and collect unrelated facts without thinking about the reason for doing so. However, those who expressed this conception made it clear that what followed acquisition was utilising.

Although you have learned it, you cannot apply it, so this is equal to no learning. I learn something in order to apply it. S3

While analysing some issues, you may discover that you can apply some knowledge taught in class very skilfully. S15

According to Marton et al. (1993) and Marton et al. (1997), this conception forms a pair with the Conception B (knowledge increase), and it is the application side of the pair. Therefore, this conception is closely related to Conception B, although they are seemingly two independent and distinctive ways of conceptualising learning.

The current conception is different from Conception C in the sense that applying knowledge is not set for assessments. It is evident from transcripts that the students with Conception D had various aims, such as resolving academic tasks and problems, contextualising theories and interpreting issues in real life. The situation of this conception is expanded beyond assessment and academic learning. Knowledge can be retrieved and applied when the need arises in both academic and life situations.

It should be noted that application in the first subcategory (D1) indicates a strong inclination towards matching, and the process of understanding appears to be inconspicuous. The learners' focus was on certain conclusions or ready-made theories,

algorithms, principles, steps, and models on the one hand, and suitable applicable situations on the other. Their concern was how to use the knowledge acquired, rather than “active sense-making activity” (Marshall et al., 1999, p.297). van Rossum and Hamer (2010, p.5) label this category as ‘Reproductive understanding/application’ or ‘Application foreseen’, which “has a flavour of not only memorising, but also ‘practising until perfect’ without changing the knowledge or the procedures”. While they could certainly succeed in matching these things correctly and feel good in the process, there is no space left for exploring the reason for the matching and sense making. Therefore, this way of experiencing learning does not facilitate a genuine understanding of the learning material and its usefulness may be limited (Shute, 1979).

It is unusual for the understanding-related application to be found in phenomenographic studies. Meaning seeking can barely be found in application in research studies that follow early argument by Marton et al. (1993), but present in understanding. However, the three students holding Conception D2 deemed that understanding was the precondition for applying knowledge, i.e. they based application on understanding the underlying meaning. They thus identified a close relationship between application and understanding. From the students’ perspective, Conceptions D1 and D2 constitute two categories of application.

As discussed in Conception D1, quite a few of the participants failed to relate application to understanding, which has been repeatedly demonstrated by numerous studies (Byrne & Flood, 2004; Marton et al., 1993). However, the data clearly indicated a more complex subcategory within Conception D. By recognising the importance of comprehending the underlying meaning of knowledge, students deliberately acknowledged that application should be based on comprehending, in other words, understanding is the crucial prerequisite for utilising. Application and understanding are related in this sense.

Be clear about what it means and then you can apply it. S10

If I [...] understand something, I can apply it or use it as an analytical tool in daily life. S18

It is possible that students could not only plug in the knowledge acquired, but explain why the facts, rules, theories and models are appropriate for a specific situation (Wiggins & McTighe, 2005). The learners used their previously obtained information in different settings in a thoughtful, flexible and fluent way. Understanding in this sub-conception enables students to apply and adapt knowledge and information flexibly and effectively (Entwistle & Entwistle, 2005). This is due to what Wiggins and McTighe (2005) call the transferability of understanding. By contrast, those who held Conception D1 were likely to apply superficially, inflexibly and unskilfully, and also might be incapable of dealing with diverse situations.

While investigating some Portuguese students, Duarte (2007, p.786) found a similar conception termed as 'understanding and application', meaning "a process of knowledge comprehension and of its application in the real world". Learners cannot apply something they have learned if they do not comprehend its meaning. As Lu (2006) contends, Chinese students believe such application to be a sound learning approach and it stresses both academic knowledge acquisition and the improvement of practical ability.

Thus, it could be argued that the IET students in this study constructed two different levels of application, which may be differentiated based on the presence or absence of understanding. In contrast to Conception D1, where it is difficult to find a trace of meaning seeking, conception D2 deliberately sets meaning comprehending as an important precondition for making use of something. Participants with this understanding-based application conception would not only utilise the knowledge they had learned, but be able to make sense of the underlying meaning beneath the

superficial facts, procedures, theories and models. The students had a genuine understanding of the learning material and saw the reasons for matching knowledge with the situation where application was needed.

7.2.5 Conception E. Making sense of the knowledge acquired

As discussed above, students memorise something and then recall it in certain exams when they encounter a corresponding problem. Despite application without understanding not being confined to a situation that involves an assessment, in essence, it can be described as matching a concept, theory and model with the corresponding problem in either an academic or a real-life situation. Thus the salient feature of both conceptions is matching.

However, the conception of making sense of the knowledge acquired is different. Understanding refers to ways of apprehending and discerning, rather than just knowing or how to manipulate something (Ramsden et al., 1993). The participants with this conception perceived learning “in terms of the learner grasping, or understanding an idea, a meaning; developing a conception of something” (Marton et al., 1993, p.290). According to Marton et al. (1993), the watershed between this conception and the above lies in ‘meaning’; meanwhile, Boulton-Lewis et al. (2004, p.101) state that the “demarcation between this and the first three conceptions [the increase of knowledge, memorisation and reproduction and application] is ‘meaning’ as a way of seeing things, looking into something, discovering, relating, and getting different viewpoints”. It is the participants’ aim to further internalise what they have learned, as Marton and Booth (1997, p.37) contend, viewing learning as understanding “involves putting their newly gained knowledge not only into a context of the demands being made by the educational system of which they are a part, but also integrating it into their own worlds through comparing and contrasting”. To understand something “requires that the one who understands proceed beyond the ‘surface structure’, which is provided by the

situation, to a 'deep-structure trace', which represents many aspects of the situation that are not explicit in the surface representation" (Nickerson, 1985, p.232).

Nonetheless, it is noted that learning materials cannot be meaningful unless learners look into or make sense of them;

[...] bodies of knowledge do not have value independently of people finding value in them, so too propositions, theories, arguments do not have meaning unless people find them meaningful – unless they connect with the learners' way of making sense of experience. Therefore, supreme importance is attached to active enquiry, [...] (Pring, 2005, p.90).

Pring (2005) implies that knowledge alone cannot represent value, and learners need to make sense of it in order to change information into meaning, which requires active engagement. van Rossum and Hamer (2010, p.6) claim that "[b]y constructing meaning respondents take an active part in the construction of their own view of the world". Similarly Nickerson (1985, p.234) also regards understanding to be an active process and understanding "requires not only having knowledge but also doing something with it". However, the important role of the lecturer could not be downplayed as S18 said.

*If the lecturer didn't explain something, I might just get the literal meaning,
but it was truly different when the lecturer explained it. S18*

Nickerson (1985) claims that this is because lecturers or experts, as might be expected, are often superior to students or novices in terms of the richness of knowledge, from which understanding derives.

The remarks made by the students in this study indicate that understanding can be achieved by bridging what has *been* learned with what has *to be* learned (Entwistle & Entwistle, 1992). As Nickerson (1985, p.234) states;

It [understanding] requires the connecting of facts, the relating of newly acquired information to what is already known, the weaving of bit of knowledge into an integrated and cohesive whole. In short, it requires not only having knowledge but also doing something with it.

Asikainen et al. (2013, p.39) also demonstrate that;

Students emphasised their own active role in aiming to understand and in building a coherent whole of pieces of knowledge by trying to find connections between them. They actively integrated new knowledge with prior knowledge.

These statements are confirmed by the transcripts in this study. The IET students actively connected the content they were studying with what they had already learned. Their current learning reminded them of prior knowledge they had internalised and digested in the past. The retrieved knowledge helped them to make sense of the information and facts they were currently learning to a great extent.

[...] when you take other courses, you may always link them to the particular course you learn very well. I mean you always connect many courses with some courses you've learned really well. S22

From an inter-disciplinary perspective, the meaning-making process may be described as “integrating knowledge and understanding across subject areas and over time” (Byrne & Flood, 2004, p.33), and while a limited number of students mentioned this method, it cannot be denied that understanding may occur between various academic domains (disciplines and subjects). This captures the ‘breadth’ of understanding (Entwistle & Entwistle, 2005).

For example, if I'm interested in economics and I study it very deeply, maybe I could learn a little psychology and accounting. I think it would be possible to become a great master if a subject could be learned with the help of knowledge from other disciplines. S9

In this learning conception, the IET students also explicitly discerned two forms of understanding oriented toward different directions. The first orientation enables the learners to make sense of what the learning materials are supposed to ask students to comprehend. There are some standard and authoritative underlying meanings and it is the students' task to find them out and understand them. However, those students with the second orientation considered that they comprehended things in their own way and exhibited a personal view toward something.

*I have a thorough understanding of this issue and I have my own opinion.
[...] and then I may actively collect some information and form my own view.
S11*

That is to say, you have to find your way of understanding. S19

In a way, this differentiation is somewhat similar to the target and personal understanding distinction. The former "derives in part from the formal requirements of the syllabus but is interpreted from the lecturer's own perspective" (Entwistle & Smith, 2002, p.332); whereas the latter "reflects how the student comes to see the topic presented by the lecturer, influenced by the lecturer's view, but also by the student's prior educational and personal history" (Entwistle & Smith, 2002, p.332). Furthermore the excerpts illuminate that having a personal understanding requires high-level engagement in learning, the accumulation and discrimination of information and knowledge and being active.

According to Nickerson (1985, p.230), evidence of understanding can be discerned by

the following characteristics;

- the ability to communicate effectively with people who are knowledgeable with respect to a given domain;
- the ability to apply a principle consistently in a variety of contexts;
- the ability to carry out a process or procedure in such a way as to obtain consistently the desired results;
- the feeling or subjective confidence that one understands ("sees") a principle or relationship (perhaps not strong evidence but not unimportant either);
- the ability to draw analogies that are considered appropriate by people who are presumed to be knowledgeable with respect to the domain.

The participants' transcripts echo some these abilities. To show she has comprehended academic knowledge, S13 would do some exercises involving the use of relevant theories and principles. In a way, this may correspond to the second ability that applying principles consistently in varied contexts.

A few students believed that, if they had sufficient expertise to discuss certain academic and practical issues, it would signify that they had understood them. This verifies the first ability to communicate with other knowledgeable people effectively. The students were confident about providing "a convincing explanation of what they had come to understand" (Entwistle & Entwistle, 2005, p.148) to others. According to Dahlin (1999), such communication and discussion with other people may also help learners to develop real understanding, since doing things and engaging in various activities such as discussions and practice is a significant means by which comprehending can grow.

If you discuss some issues with classmates, you will know whether you have understood something. S6

Additionally the fourth ability was prevalent among the participants, since they believed that they were able to have some insights into something beyond superficial information; for example, S9 said that she could comprehend the underlying meaning of some changes in a certain graph.

Take a graph for example, (I should know) what it means if it goes up or down and what the axes represent. S9

This evidence can also be demonstrated by being able to comprehend the relationship of the knowledge learned as discussed above.

Asikainen et al. (2013) contend that this conception is different from the aforementioned ones, because firstly, its emphasis is on understanding knowledge rather than acquiring, and this makes it different from Conceptions A and B. Secondly the present conception stresses the integration of knowledge rather than the use of knowledge in practice, which is in contrast to application without understanding.

7.2.6 Conception F. Gaining a new perspective to view reality

This way of conceptualising learning is similar to ‘seeing in a new way’ (Tsai, 2009). Over a long period of time of the discipline study, or more specifically IET knowledge learning, the students formed an economic perspective, from which they tended to re-understand and re-interpret the phenomena encountered in the world. Their way of seeing things as a result of IET learning might be different from the previous, that is, “the learner is changing his or her way of thinking about something, changing the conception of something” (Marton et al., 1993, p.290). Meanwhile, Boulton-Lewis et al. (2008, p.125) are also aware that the unique aspect of this conception is changing in terms of perceiving things;

Emphasis is placed on the way in which things are seen from a different perspective [...] Seeing something in a different way is not restricted to the study situation but may be applied to the world as a whole.

According to Marton et al. (1993) and Byrne and Flood (2004), the current conception expands the previous one, in that understanding helps learners to view and interpret the world, and thus changes their perspective. The emphasis is on “applying understanding to make sense of things-phenomena-in the world” (Marshall et al., 1999, p.301), rather than on the use of ready-made facts, procedures, models, rules and theories as in Conception C. The learning context is expanded, “away from the area immediately demanded by the subject of study and toward the world as a whole” (Marton & Booth, 1997, p.37). The students holding this conception could utilise the “knowledge of concepts or of the analytical methods of the discipline to new situations or phenomena in the world” (Marshall et al., 1999, p.302).

As Roisko (2007) claims, the present conception demonstrates the process of conceptual change. There is abundant literature related to conceptual change, and the set of conceptual change theories facilitates an understanding of how people learn new and abstract things and the changes that may occur during this process (McGregor, 2014).

Conceptual change can be described as “the process by which people’s central, organising concepts change from one set of concepts to another set, incompatible with the first” and “how concepts change under the impact of new ideas or new information” (Posner et al., 1982, p.211), which implies that learning should be understood as a course in which people switch and exchange their conceptions;

Learning is concerned with ideas, their structure and the evidence for them. It is not simply the acquisition of a set of correct responses, a verbal repertoire or a set of behaviours. We believe it follows that learning, like

inquiry, is best viewed as a process of conceptual change. The basic question concerns how students' conceptions change under the impact of new ideas and new evidence. (Posner et al., 1982, p.212)

Only two students talked about Conception F in relation to their specialised knowledge learning, that is, the IET learning leads to an economic pattern to view and interpret academic and life issues. In the light of conceptual change, the process can be described as: the students comprehend and internalise the newly-learned IET subject matters, and then they obtain a set of IET-related concepts as the central and organising framework.

Conceptual change, from Hewson's (1992) perspective, is a way to think about learning. The word change can be used in several ways as Hewson (1992, p.3) contends that it could mean the "extinction of the former state", "an exchange of one entity for another" and "extension". According to the transcripts, it might not be easy to accurately classify the change the two students expressed in this study. Both of them thought they obtained a new economic way to interpret reality, but they did not mention what the previous interpretations were and what happened to them.

Vosniadou (1994) identifies three categories of conceptual change, namely, enrichment, revision, and change in the theoretical framework. Enrichment is deemed to be a relatively easy category, which refers to "the simple addition of new information to an existing theoretical framework through the mechanism of accretion" (Vosniadou, 1994, p.49). The need for revision arises when the information to be obtained is inconsistent with pre-existing knowledge. Finally there is also a kind of change in framework theory.

S1's and S15's transcripts demonstrate that they attained an 'economic mode of thought' or 'economic perspective', or more precisely, the ability to see, understand and interpret things from an economic perspective because of the IET knowledge they learned.

I can increasingly think about problems from an economic perspective. S1

I can analyse some problems from an economical perspective. S15

According to Roisko (2007), Conception F is similar to Vosniadou's (1994) third type of conceptual change. Such theoretical framework transformation is sophisticated and difficult, because

presuppositions of the framework theory represent relatively coherent systems of explanation, based on everyday experience and tied to years of confirmation. In addition, ontological and epistemological presuppositions form the foundations of our knowledge base and their revision is likely to have serious implications for all the subsequent knowledge structures which have been constructed on them. (Vosniadou, 1994, p.49)

Engagement is a key element to facilitate conceptual change. Kuh (2003, p.25) claims that engagement is the "time and energy students devote to educationally sound activities inside and outside of the classroom". Although S1 and S15 referred to developing a new economic perspective to interpret the world, they did not provide much detail on the process. However, since both of them gained a new perspective, it could be inferred that they might actively experience a deep level of engagement on the way to conceptual change.

7.2.7 Conception G. Personal change and growth based on an extensive understanding of learning

The significant precondition for this conception is the expanded understanding of learning, i.e. learning is not bound by time, content and place (Byrne & Flood, 2004;

Marton et al., 1993; Purdie & Hattie, 2002; Purdie et al., 1996) and it is also “a voyage of personal discovery” (Byrne & Flood, 2004, p.28). Learning is viewed as “an integral and ongoing part of the life of the person concerned” (Beatty et al., 1997, p.151). The participants distinguished formal learning from informal learning when talking about this conception. It was clear that they valued the latter, since some utterances significantly captured certain attributes of informal learning; however, this did not mean that they completely ignored the importance of formal learning.

The Commission of the European Communities (2001, p.32) defines formal learning as “typically provided by an education or training institution, structured (in terms of learning objectives, learning time or learning support) and leading to certification”. It is “intentional from the learner’s perspective” (Commission of the European Communities, 2001). According to Eraut (2000, p.114) formal learning has the following five characteristics;

- a prescribed learning framework
- an organised learning event or package
- the presence of a designated lecturer or trainer
- the award of a qualification or credit
- the external specification of outcomes

Formal learning is basically an ‘institutionally-driven’ approach (Stuckey & Arkell, 2005), which is often related to a lecturer-centred pedagogy and a set of approaches specifically projected to facilitate pushing educational resources and learning materials to consumers or students (Willems & Bateman, 2013). Learners play a passive role in this process and their individuality is usually ignored, since the push model intensifies the ‘one-size-fits all’ approach to teaching and learning (Arif et al., 2005). Despite these negative aspects, formal learning is still predominant in many countries in the world (Colley et al., 2003).

As for informal learning, neither researchers (e.g. Werquin, 2010) nor international organisations (e.g. Cedefop, 2008) have managed to agree a definition. Livingstone (2001, p.4) defines informal learning as “any activity involving the pursuit of understanding, knowledge or skill which occurs without the presence of externally imposed curricula criteria”. It could occur “in any context outside the pre-established curricula of educative institutions” (Livingston, 2001, p.4). Some key components of “informal learning (e.g. objectives, content, means and processes of acquisition, duration, evaluation of outcomes, applications) are determined by the individuals and groups that choose to engage in it” (Livingston, 2001, p.4). The status of knowledge is situational and practical. Colley et al. (2003, p.4) claim that “informal learning concerns everyday social practices and everyday knowledge, and is seen as taking place outside educational institutions”. The Commission of the European Communities (2001, p.32) contends that it is “learning resulting from daily life activities related to work, family or leisure”. The objectives are not pre-determined, the time is not restricted, and the curricula are not structured and specified (Malcolm et al., 2003). This kind of learning is usually non-intentional and incidental, and does not lead to certification (Commission of the European Communities, 2001).

Therefore, it is not difficult to identify some attributes of informal learning based on the above diverse definitions. Hager and Halliday (2006, pp.235-238) propose that informal learning has the following four key features;

- Informal learning is indeterminate;
- Informal learning is opportunistic;
- Informal learning features both internal and external goods;
- Informal learning is an ongoing process.

Schugurensky (2000) identifies three kinds of informal learning, namely, self-directed learning, incidental learning and socialisation, which correspond well with the participants’ statements. Self-directed learning is essentially intentional learning, since

learners often have certain goals to achieve. Although the role of educator is absent, a 'resource person' is present. This is also a conscious process in that the learners are usually aware that they have learned something. S5's expression that she could learn how others did something and S19's statement that she had to learn life-related skills when living independently demonstrate this subcategory. Both of these students intended to learn something, and they could perceive the outcome by practising or other means.

For example, you watch other people doing something, and maybe their way of doing it is worth learning. S5

I have had to learn a lot about living independently. S19

The second subcategory of incidental learning is unintentional, because learners do not intend to learn something from a particular experience. As Marsick and Watkins (1990) note, the learning only occurs as a by-product of another activity, and S23's description is a good example. This thoughtful student had a wide range of hobbies for relaxation and enjoyment, as opposed to deliberately and seriously learning something. Nonetheless, he explained that, since he also obtained knowledge through this process, it could be inferred that learning is a by-product of his hobbies. Meanwhile, S23's example also confirms the claim of Hager and Halliday (2006, p.238) that informal learning is likely to occur through leisure activities, such as hobbies, crafts and sport, so that they deem that these activities "can be major sources of learning, much of it informal".

I find that learning is more than learning knowledge on campus ... I think it is also a sort of learning to buy stocks and shares and I can feel something while doing so. I often go to the national library and read books, which is also a kind of learning. I also have my hobbies such as ancient architecture [...] and I learn something from them. [...] This is a kind of learning as well.

The last category, socialisation, refers to tacit learning, i.e. the internalisation of life and social-related “values, attitudes, behaviours and skills” (Schugurensky, 2000, p.4). This process occurs in such a very silent way that people can hardly perceive and detect it; furthermore, learners have no intention to learn prior to the process. S9 believed the university to be a society-like place, and she valued the importance of interpersonal communication.

The university is semi-social, and it's important to communicate with people who are older than you and those who have already been employed. You should watch your words and behaviour. I think all of these are important factors to learn at university. S9

It is difficult to pinpoint the exact educational value of this activity, and students often did not learn from it on purpose; however, many of them became increasingly socialised individuals because of this tacit learning.

Occasionally, however, it is difficult to distinguish these subcategories. For instance, it may not be easy to categorise the activity of interpersonal interaction. If someone has a strong intention to learn something very specific (e.g. a skill), it may belong to self-directed learning. In some cases where it was not the aim to learn, but people are aware that they have learned something beneficial from the interaction, learning could be said to be incidental. If they did not intend to learn something from the interaction, nor are they conscious of what has been learned, but they gradually change their attitude and way of doing things, this may be described as tacit learning.

While acknowledging the fact that learning is composed of both formal and informal learning, the latter is very much emphasised in the current conception. The previous conceptions have mainly been analysed in the context of formal learning, but the

present conception stresses informal learning. It is the combination of the two categories that enriches the meaning of learning and facilitates the occurrence of learning, regardless of time and place.

Having broadened their understanding of learning, the participants began to explore the meanings inherent in varied phenomena they experienced through observing, discovering, simulating, communicating and reflecting, therefore, they changed their attitudes, personalities, beliefs, thoughts and behaviours. Learning is “integrally tied to the person, and to his or her experiential framework” (Franz et al., 1996, p.332). A number of studies call this ‘change as a person’ and separate it as an independent conception (e.g. Boulton-Lewis et al., 2008; Byrne & Flood, 2004; Marton et al., 1993), which is deemed to be “the most extensive way of understanding learning in that it embraces the learner, not only as the agent of knowledge acquisition, retention and application, and not merely as the beneficiary of learning, but also as the ultimate recipient of the effects of learning” (Marton & Booth, 1997, p.38). Purdie et al. (1996, p.94) claim that this conception often “lead[s] to greater maturity, personal growth, or improvement, and this change sometimes led to a sense of empowerment”. It is noteworthy, however, that ‘change as a person’ is a result of ‘seeing something in a different way’ (Marton et al., 1993). By contrast, the conception in this study is the consequence of an expanded understanding of learning, i.e. viewing learning as a universal education phenomenon that exists everywhere and at any time. Therefore, the preconditions for the two are somewhat different.

A closer look at the change the participants described in this conception indicates that there are basically three categories of change (Marton et al., 1993). The first of is change or contradiction, i.e. the difference between the present and the past. The case of S16 is a good example of this. S16 used to be impatient, but now he is becoming patient and calm. Similarly, participants such as S19 and S23 expressed and compared their changed thoughts, which became more mature and comprehensive.

I used to be very impatient in the past, but I have increasingly become calm.

S16

Having learned so many things at university, my thoughts are changing, becoming more comprehensive. S19

However, I find I've changed my ideas during the past two years. S23

Another change can be called development and, in contrast to the previous one, it may refer to the possession of certain abilities or skills that were not possessed in the past. The development of life skills when living independently, mentioned by some of the students, exemplifies this kind of change.

I have had to learn a lot about living independently, such as how to get along with others while living in a dorm. S19

The last type of change in the present conception is identified by Marton et al. (1993, p.293), which is “from seeing oneself as an object of what is happening (‘things just happen to you’) to seeing oneself as an agent of what is happening (‘you make things happen’)”. As the Marton et al. (1993) note, this means that learners have a feeling of ‘being in charge’ based on their understanding of the relationship between different things. It does not imply that they can totally control what will happen (Marton et al., 1993). S19’s statement somewhat echoes this argument, since the ability to plan for her personal development demonstrates that she will be able to be responsible for her own life and study and minimise the impact of any irrelevant things. This student is unwilling to be a passive recipient of unexpected events; instead, it seems that she is clear about what she wants to learn and the kind of life she intends to lead.

I can plan for myself in a more comprehensive way. S19

According to Pillay and Boulton-Lewis (2000, p.173), students with this conception “have a non-dualistic view of learning, that is, they see learning as something that is seamless”. They “have a more holistic picture of learning” and “see learning as more than instruction” and learning occurs “beyond the confines of instruction-based programmes and is not exclusively associated with subject content knowledge” (Pillay & Boulton-Lewis, 2000, p.173). By contrast, learners who consider the nature of knowledge to be dualistic tend to believe that knowledge exists in the form of concrete and unrelated units which are separated from the learners (Pillay & Boulton-Lewis, 2000). Thus, the dualistic belief may play a negative role in learning and result only in some surface approaches, whereas the non-dualistic view should be a highly complex conception of learning.

Drawing on the literature, the above sections provide further analysis for each conceptions of learning. The general hierarchical relation is emerging, which can be further confirmed by an examination of the key dimensions of variation that are embodied in each different way of experiencing or understanding learning in the following section.

7.3 Dimensions of variation and outcome space

As stated in Chapter 4, the development of phenomenography has been subject to a dichotomy, since the classical phenomenography focuses on exploring variations in qualitatively different ways of experiencing some phenomena (Pang, 2003), whereas the new phenomenography focuses on “describing the nature of ways of experiencing in terms of the experienter’s awareness of critical aspects and corresponding dimensions of variation” (McKenzie, 2003, p.98). There has been an increasing theoretical transformation “from questions about how to describe different ways of experiencing something to questions concerning what is the nature of the different ways of experiencing something described” (Pang, 2003, p.146).

While the so-called classical phenomenography was mainly adopted in this study, the focus is not merely on discovering the qualitatively different ways in which the phenomenon of learning is understood. Furthermore, some key characteristics were borrowed from 'new phenomenography'; for example, the usage of a referential and structural framework. Moreover the notion of 'dimensions of variation' (Marton & Pong, 2005) is also adopted to analyse the conceptions found.

The dimensions of variation are the "different aspects of the phenomenon that were referred to in some transcripts but not in others" (Åkerlind, 2005c, p.122), and they are "simple contextual and representative statements of experience of an aspect of a phenomenon that distil its experience for some of the participant group" (Foster, 2016, p.310). A dimension of variation is an element or aspect that exists in the phenomenon as a whole, and may also have the potential to vary from categories to categories (Cope, 2004). It assists researchers to "define the nature of the different ways of experiencing a phenomenon" (Jaidin, 2009, p.89). Dimensions of variation act to link and separate categories of description (Åkerlind, 2005a). In other words, they connect all the categories together and "reveal a logical relationship between each way of experiencing learning" (Jaidin, 2009, p.115), but on the other hand, they are the analytic marks to show that one conception is different from others. Pang (2003, p.150) contends that "[e]very aspect can be a dimension of variation", yet it is the researcher's aim to discern and focus on the critical aspects that can differentiate one way of experiencing from others rather than revealing the full range of variations in experiencing a phenomenon (Åkerlind, 2005b). Paakkari et al. (2015, p.12) claim that in phenomenographic studies, "it is important to identify not only the different conceptions or categories but also the aspects which critically differentiate the categories from each other and hence reveal the quality differences between them". By focusing on these critical aspects the structural relationship between different ways of experiencing can be highlighted whereby people would be able to discern the more advanced and powerful ways and what may be required to achieve them (Åkerlind, 2005b; Runesson, 2006).

These qualitatively different ways of experiencing learning or learning conceptions found in this study can be highlighted by the following key dimensions of variation (Table 7.1).

Conception	Student's role	Object	Knowledge	Act	Expected outcome
A	Passive	Sign	Unrelated	speaking, reading, listening, writing	Improved linguistic abilities
B	Passive	Sign	Unrelated	receiving putting something into head	Increased information and knowledge
C1	Passive	Sign	Unrelated	mechanical memorisation (rote learning)	Memorise and reproduce information
C2	Active	Sign& Signified	Related	understanding and memorising	Memorise and reproduce information Understanding
D1	Passive	Sign	Unrelated	matching (find applicable situation and put things acquired into use)	Academic and life problem solved
D2	Active	Sign& Signified	Related	making sense of things before using	Academic and life problem solved Understanding
E	Active	Signified	Related	comprehending, discovering, grasping, establishing relationship, integrating	Knowledge comprehended and internalised
F	Active	Signified	Related	developing and shaping a new perspective	A new perspective
G	Active	Signified	Related	interacting, discovering, reflecting, changing, growing	Personal growth

Table 7.1 Critical dimension of variation across conceptions of learning

The first dimension is the students' role, which can be described as being either passive or active. Even though the subject of learning has always been the IET students, as illustrated in the previous chapter, the roles the students play are somewhat different. It could be concluded from the findings and the discussion that the first four categories showing strong quantitative characteristics implies that the learners play a passive role and not perceiving themselves to be agents of learning. Conversely, the students often play an active role in the case of strong qualitative conceptions, which require personal enthusiasm, independence, initiative and engagement.

The second dimension has to do with the object of learning. Dahlin (1999, p.192) names it as the depth dimension, which concerns "what the act of learning is focused on".

According to Dahlin (1999) and Marton et al. (1997), it is composed of the 'sign' and the 'signified'. The 'sign' encompasses the text, words and information that can be easily recognised in the learning materials; the 'signified' refers to the meaning and the phenomenon that does not exist at the superficial level and requires learners to look through or go beyond the 'sign'. The former causes a surface learning approach with a primary focus on learning materials (Marton & Säljö, 1976) or superficial words (Dahlin & Regmi, 1997). This is probably the result of Conceptions A, B, C1 and D1, and could have a negative impact on students' learning. As Biggs and Tang (2011) state, these learners merely pay attention to isolated facts and items and "they cannot see the wood for the trees" (Biggs & Tang, 2011, p.25). In contrast, the remaining conceptions are expected to facilitate a deep approach to learning, "characterised by the learner's focus going beyond-or through-the sign or the learning material to the signified" (Marton et al., 1997, p.22). The 'signified' means the things "to which the learning material refers" (Marton et al., 1997, p.22). In other words, what the learning materials are about or "the meaning of the text or to the phenomenon the text is dealing with" (Marton et al., 1997, p.22). Conceptions C2 and D2 show a combination of valuing both the 'sign' and the 'signified'.

The third dimension is also relevant to the object of learning, namely the nature of knowledge, i.e. whether it is related or unrelated. The relatedness can be described in terms of both the relationship between pieces of knowledge and between the knowledge and the learner. The students with conceptions of learning that show strong quantitative characteristics and who regard knowledge as being unrelated are unlikely to see the relationship between pieces of knowledge, i.e. they view them as fragmented, unrelated and discrete units. Furthermore, they also view the information and knowledge as independent of the learners themselves (Marton et al., 1993; Pillay & Boulton-Lewis, 2000). Although the students may have received, stored and applied knowledge, they still treat it as something external to them. They cannot be aware of the necessity to integrate newly-learned information with previous experience to construct meaningful learning. Conversely, the participants with the remaining

conceptions are able to integrate and internalise what they have learned. As a component part, the knowledge they obtain becomes an integral part of their existing information system. The learners could also relate seemingly disordered and unsystematic information, and thus generate insights into the potential relationship. The students holding the two sub-conceptions C2 and D2 see the nature of knowledge as related, as understanding exists in memorisation and application.

The most obvious dimension is the act of learning or the focus of behaviour, which exists as well as varies across all the conceptions. Each learning conception encompasses behavioural elements to demonstrate the way of experiencing learning. With the conceptions becoming more sophisticated, the act is showing an increasingly complex inclination. For example, receiving, adding and storing is much simpler than putting things into practice. To make sense of the information is definitely more complicated than to remember things. Notably, the cases of the two sub-conceptions (C2 and D2) indicate that act can be overlapped. Conception C2 blends meaning making and memorising, while Conception D2 integrates meaning making with applying. This implies that both memorisation and application can be related to understanding.

Similar to the act of learning, the last dimension of learning, namely the expected outcome, can also be easily identified. Clearly this dimension is becoming increasingly more advanced and sophisticated, from a narrow focus on improving linguistic ability in the least complex way of experiencing learning, to changing and growing as an individual in the most complex learning conception. The students with Conceptions A, B, C1 and D1 only expect something superficial in the outcome; by contrast, those with Conceptions E, F and G are actively seeking for something more profound. It is noteworthy that due to the existence of understanding, Conceptions C2 and D2 are located on the borderline. The students with these two sub-conceptions would expect both superficial and profound outcomes.

According to Åkerlind (2005a, p.7);

the qualitatively different ways of experiencing a phenomenon constituted during a phenomenographic analysis would typically represent more or less complete understandings of the phenomenon, rather than different and unrelated understandings. These different understandings may then be ordered in terms of complexity or completeness.

Therefore, it is possible to establish a hierarchy to represent the increasing breadth of awareness (Åkerlind, 2005a) of the distinctive aspects of learning based on the findings and analyses. The outcome space, which is the final product of phenomenographic research, can be constructed in line with the above discussion (Figure 7.1).

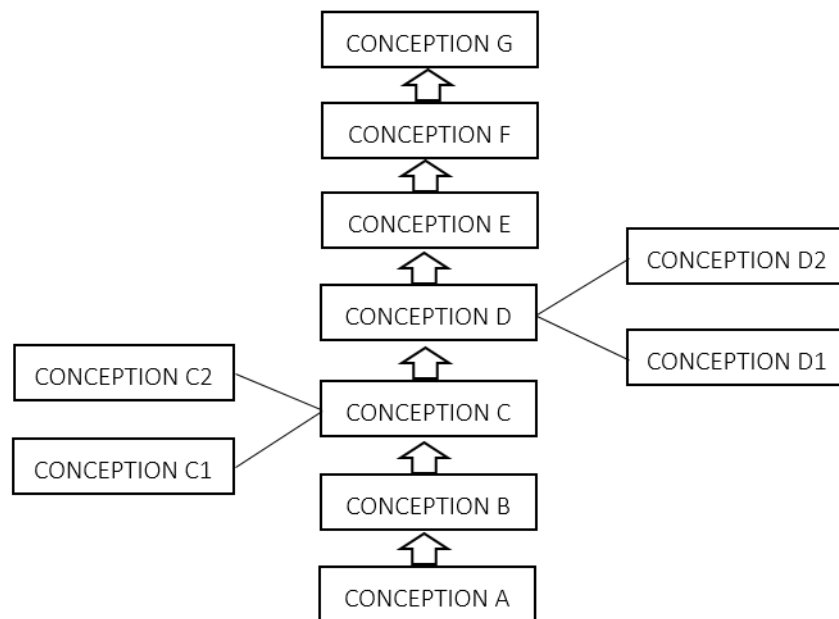


Figure 7.1 The outcome space

As stated above, Conception A is undoubtedly the initial and simplest way to understand learning in general in the CFCRS programme. The meaning aspect is vague and the structural aspect (the internal and external horizon) is rather restricted. It is context-sensitive and perhaps exclusively confined to this particular study. Despite the

substantial expansion of the theme, the main features of Conception B are ambiguity and shallowness. Since students expressing Conception C1 clarified one superficial aspect of learning, this conception has a functional aspect (Byrne & Flood, 2004). In addition to storing information, those students held Conception D1 concentrate on putting it into practice; meanwhile, this is not confined to academic learning, but applied in various contexts.

Two branches have also been identified within Conceptions C and D respectively. With respect to Conception C2, it has to be clarified that students' ultimate goal is memorisation and they perceive understanding as a means by which they could remember things easily and smoothly. Conception C is composed of 'understanding-based memorisation' and 'memorising before understanding' (Meyer, 2000), both of which indicate the existence of understanding, but it is not the ultimate goal. Likewise, Conception D2 is similar, since application is the final aim and understanding only acts as a tool to assist learners to achieve it. The identification of the two sub-conceptions clearly demonstrates that the Chinese students experience and understand learning in a more sophisticated way, as they are able to see the possibility to connect understanding to both memorising and applying things.

Seeking the meaning is the core theme of Conception E, which distinguishes it from all the previous categories. The existence of an emphasis on meaning also characterise the qualitative or transformative conception group, which includes Conceptions E, F and G. Learners begin to switch their attention from the visual words and texts to the underlying meaning, mechanism and relationship. The academic learning, more specifically, receiving, storing, applying and comprehending the specialised knowledge, finally helps the IET students to develop a new perspective enabling them to view phenomena in the world. The learners with the final conception have a holistic picture of learning (Pillay & Boulton-Lewis, 2000), since they believe that learning can occur in various circumstances and there is vast amount to learn; as a consequence, their personal attributes could possibly vary. Therefore, this is the most sophisticated way to

understand and experience learning and should be located at the highest level.

Generally speaking, the learning conceptions held by the IET students in the CFCRS programme identified in this study indicate a hierarchy as do many phenomenographic studies (e.g. Asikainen et al., 2013; Byrne & Flood, 2004; Marton et al., 1993). Higher-level conceptions usually contain key constituents of lower-level ones, and the last conception is the most sophisticated as well as the most inclusive (Turner & Baskerville, 2011). Yet the branches for some learning conceptions, which might be deemed to be the characteristic of the Chinese learners in the CFCRS programme investigated, are also worth noticing. The seemingly ordered and hierarchical outcome space should not oversimplify the complexity of learning conceptions held by the Chinese IET students in the CFCRS programme.

7.4 Chapter summary

This chapter draws on the previous research findings to provide a deeper analysis for each learning conceptions found in this study. A number of key elements inherent in each conception have been discussed in relation to the existing literature. Numerous similarities and differences were highlighted via the comparison with previous phenomenographic research findings. Based on the key dimensions of variation across the learning conceptions, the outcome space is constructed to illustrate the relationship between different ways of experiencing and understanding learning in the programme investigated.

The final chapter summarises the key findings of this study before highlighting the contributions to the understanding of conceptions of learning, phenomenography and HE internationalisation research. Also the implications for learning and teaching in the CFCRS programme, the limitations of the study and recommendations for future research are discussed.

Chapter 8. Conclusion

8.1 Introduction

The aim of this study is to explore and understand the qualitatively different ways in which IET undergraduates experience or understand learning, and the potential relationship between these ways, by answering the questions ‘What are the conceptions of learning held by IET students in the CFCRS programme?’ and ‘How are the various conceptions of learning found in this study related?’. By responding to both questions the second section of this final chapter deals with the major findings of the research. The contributions the study has made to the understanding of CFCRS programme Chinese undergraduates’ learning conceptions, phenomenography and HE internationalisation research are provided in the third, fourth and fifth section. The research findings have some implications for the learning and teaching in the CFCRS programme and these are expounded in the sixth section. The limitations of the current study are explored at the end of the chapter and some recommendations are made for future research in this field.

8.2 Summary of key findings

One significant research question the present study intends to answer is ‘What are the conceptions of learning held by the IET students in the CFCRS programme?’ or ‘What are the qualitatively different ways in which the IET students experience their learning in the CFCRS programme?’ Seven significant conceptions of learning have been found; (A) language improvement, (B) increasing new knowledge, (C) memorising and reproducing when necessary, particularly for exams, (D) application of knowledge for various purposes, (E) making sense of the knowledge acquired, (F) gaining a new perspective to view reality, (G) personal change and growth based on an extensive understanding of learning.

The findings indicate that a high proportion of the participants hold Conception A. They perceive learning in the CFCRS programme as an opportunity to enhance their linguistic abilities. They greatly value the importance of the language learning and believe that their English could be improved in the CFCRS programme with the help of Australian lecturers, English learning materials, and the numerous opportunities for cross-cultural communication. Given the cross-cultural nature of this programme, it is not surprising to see that Conception A were held by a high proportion of IET learners; however, this conception has to be set as an initial conception in view of their very limited focus and superficial understanding of learning.

Students with Conception B feel that it is unnecessary to think about how to define learning and thus its meaning is fuzzy. The interviewees distort the question by providing answers to learning content such as what ought to be learned and the ways to learn things. They stress an increase in quantitative and discrete knowledge, but fail to consider the relationship and the underlying meaning embodied in what they have obtained. Although the theme in this conception is expanded compared to the previous one, as contended by many researchers (e.g. Marton et al., 1993; Säljö, 1979b), it is still not a sophisticated way to experience learning.

Two subcategories are identified in Conception C. The students with C1 view learning as storing pieces of knowledge and reproducing them in assessment situations. They have a strong ability to memorise things in a mechanical way, i.e. remembering without knowing the meaning. Needless to say, this could be a troublesome and extremely repetitive process. By contrast, two students express that understanding plays a vital role in memorisation (C2). These learners build memorisation upon understanding and they have realised the positive mutual impact between remembering and comprehending. Therefore, the study indicates that Conception C2 does exist in Chinese undergraduates, even under this cross-cultural learning environment.

Like Conception C, two branches are also found in Conception D and the boundary is also understanding. D1 is similar to what Franz et al. (1996) call matching, i.e. retrieving and using what has been learned with the absence of meaning making. The learners holding this sub-conception do not care if they know what these things are about; their focus is on the application. The situations for usage cover a wide range and are not confined to academic learning. However, a few students in the other branch are aware of the correlation between applying and understanding. They believe that knowledge is required to be understood before it could be used.

Those with Conception E are found to be often interested in something beneath the surface and visible knowledge, such as the underlying meaning, logic and correlation between A and B. This exploration may be a difficult process that requires enthusiasm and engagement. The meaning-making process is essentially an integration procedure, which may occur between the current knowledge and prior experience, between different courses learned, and even between various disciplines. As a result, the newly obtained pieces of information become part of the learner's knowledge system. It is also noted that understanding is delimited to a study situation.

The two IET learners with Conception F alter and develop a new perspective to re-interpret and re-understand issues in both academic and real-life situations. Therefore, unlike the prior way of experiencing learning, the scope for this conception is not confined to an academic learning context. The ability to see, understand and interpret things from an economic perspective demonstrates a basic category of conceptual change, that is, by acquiring the specialised knowledge the students develop an 'economic mode of thought' or 'economic perspective'.

Conception G is the most sophisticated and extensive way to understand learning. For those IET students with this conception, learning includes a wide range of phenomena and is not bound by time and place, which may cause personal change. These learners are found to distinguish between formal and informal learning, with an emphasis on

the latter. The changes are multiple, including personal attitudes, thoughts, beliefs and developed capacities. A great number of the participants unexpectedly express this conception.

Based on the further analysis of each learning conception and the identification of numerous dimensions of variation, the outcome space is finally established in response to the second research question 'How are the various conceptions of learning found in this study related?'. The outcome space illustrates the internal relationship between seemingly separated conceptions of learning and their potential hierarchy. Generally speaking, there is an increased trend of complexity, with Conception A at the lowest level and G as the most sophisticated way to experience learning. In addition, the four sub-conceptions identified within Conceptions C and D respectively add to the complexity of this hierarchy.

8.3 Contribution to the understanding of conceptions of learning

The research concerns a unique cross-cultural teaching and learning context in the second decade of the 21st century. The findings of this study may be similar to those of most other phenomenographic studies (e.g. Asikainen et al., 2013; Byrne & Flood, 2004; Marton et al., 1993; Säljö, 1979b; Van Rossum & Schenk, 1984) across the past three decades. Despite the similarities, a detailed and in-depth analysis reveals the differences, which contributes to the understanding of conception of learning.

The conception of language improvement identified as the first and the least advanced way of comprehending and experiencing learning may be highly specific to this IET programme. The discovery of this new conception suggests that researchers should always stick to the original transcripts and interpret them as faithfully as possible, instead of fitting the transcripts in the existing findings, theories and frameworks. Phenomenographic analysis is a process of discovering and based on bracketing both

the researchers' own biases and pre-understanding (Sandberg, 1997) and the existing theories and findings (Wood, 1996).

The study demonstrates that the rote memorisation-meaningful memorisation division (Marton, Dall'Alba & Wen, 1996; Marton, Watkins & Tang, 1997), which is made by Chinese learners, also exists among the group of IET students in the programme investigated. The memorisation-understanding relationship has attracted the attention of numerous researchers due to the 'paradox of Chinese learners' (Biggs, 1996; Marton & Booth, 1997; Marton, Dall'Alba & Tse 1996; Marton, Wen & Wong, 2005), which might be explained in the light of the differentiation made within memorisation, namely memorisation with/without understanding or rote/meaningful memorisation. Both have been identified in this research within Conception C. The IET students' transcripts illustrate that understanding may aid memorising and make it easier, and gradual understanding occurs after remembering. Therefore, Conception C shows that these IET students are holding some learning conceptions of particularly Chinese characteristics, though they are studying in a CFCRS programme and are exposed to the teaching and learning environment of the western style.

Another interesting finding is the differentiation made within application, namely application without understanding and understanding-based applying. Eklund-Myrskog (1998) identifies 'learning in terms of applying knowledge, based on understanding' and Duarte (2007) finds 'understanding and application', the two of which are similar to the conception of understanding-based application in this study. Nonetheless those two studies have not found any differentiation within application, in other words, they only identify a kind of applying that is built on comprehending. In contrast, other studies simply refer to applying without understanding when discussing the conception of application (Asikainen et al., 2013; Byrne & Flood, 2004; Marton et al., 1993; Sharma, 1997). This study illustrates that while a number of the IET students consider applying knowledge to be a matching process, where comprehending is inconspicuous, three of them believe that application and understanding are closely related. Meaning seeking

and sense making is a significant prerequisite for the use of knowledge and being able to apply something means having understood it. Thus application without understanding and understanding-based application constitute two categories of application.

The differentiations made within both memorisation and application by the IET students illuminate that the Chinese learners tend to have more a complicated experience and understanding of learning. From the student's perspective, both memorisation and application can be related to understanding, and this makes the two learning conceptions more sophisticated. It is less likely that the students treat memorisation and application in the same way as western learners do. Therefore, future studies investigating Chinese learners should carefully deal with these two conceptions.

There are some qualitative and quantitative differences with respect to the most advanced conceptions of learning between the current research and those in the literature. Firstly, even though the most advanced learning conception in this study resembles 'change as a person' or 'personal change', the precondition is somewhat different. Marton et al. (1993) contend that the conception of change as a person is the result of seeing the world differently, in that only by "developing new insights into phenomena and seeing the world differently" (Byrne & Flood, 2004, p.28) can learners change as a person. Nonetheless this study illuminates that an extended definition and understanding of learning was the precondition for personal change; in other words, individuals changed as a result of an expanded and enriched view towards the phenomenon of learning.

Secondly, the high proportion of the most advanced learning conception is an intriguing and enlightening finding. It is similar to 'change as a person' (Boulton-Lewis et al., 2004, 2008; Byrne & Flood, 2004; Marton et al., 1993), 'personal change in attitude, beliefs and behaviour' (Franz et al., 1996) and 'lifelong learning' (Pillay & Boulton-Lewis, 2000).

However, these studies, all of which were conducted in the context of western culture, prove that such a sophisticated conception could only be possessed by a limited number of students (e.g. Byrne & Flood, 2004; Boulton-Lewis et al., 2004, 2008). However, the current research indicates that approximately 19 of the 23 participants express this conception. The distribution of conceptions indicates something even more interesting, namely that despite the high proportion of the highest level conception, a large number of students still portray some very basic ways of comprehending learning. This may further imply that most students hold both very low-level learning conceptions and the most advanced one, which could barely be found in the existing learning conceptions studies. In sum, the qualitative and quantitative differences with respect to Conception G between the current and previous research may help to better understand Chinese university students' learning conceptions in the CFCRS programme.

Moreover, the outcome space constructed by the findings also questions the traditional phenomenographic argument that conceptions of learning are hierarchal, since they do not always show a perfect and straightforward linear inclusive hierarchy. Tynjälä (1997, p.284) notes that "the hierarchical nature of the categories should not be taken strictly". Taking two conceptions as examples, she further claims that "we cannot exactly determine whether describing learning in terms of information processing is at a higher or lower level than explaining learning as styles or approaches"(Tynjälä, 1997, p.284). Green (2005, p.43) contends that "[n]ovices should not assume [...] that phenomenographic categories are necessarily hierarchical" and "such relationships need to be represented in the way they are found in the transcript data rather than simply through some reflective, logical analysis by the researcher" (Green, 2005, p.43). The underpinning of hierarchical inclusiveness lies in the data, i.e. what the interviewees say. It is very problematic when researchers position their personal experience and analyses in a dominant position regardless of the original transcripts. Åkerlind et al. (2005, p.95) confirm this by stating that the hierarchy "is not one based on value judgements of better and worse ways of understanding, but on evidence of some categories being inclusive of others". Åkerlind et al. (2005, p.95) further contend

that a linear hierarchical structure is not always possible; on the contrary, “forks and branches in the hierarchical structure [...] are also common”. In this sense, the discovery of some sub-categories such as memorisation with understanding and understanding-based application in the current study supports their argument.

The conceptions identified in this study not only demonstrate the complexity of Chinese IET learners’ perception of university learning under cross-culture learning and teaching circumstances, but they also point to the possibility of there being something new to discover, even for some familiar and well-established conceptions.

8.4 Contribution to phenomenography

In terms of data collection, this study reinforces that it is a sound method to explore people’s conceptions of something in an indirect way in the initial phase of the interview, as Bowden (2005) advises. Most phenomenographers often choose to ask the interviewees in a direct way by means of questions like ‘what do you mean by learning’. While this is theoretically the core question for learning conception studies, interviewees may find it difficult to answer. Having realised the weakness, I added some indirect questions in the formal interview. For instance, I asked students to describe the courses and teaching methods they liked and did not like and why. I found that there were several merits in doing this. Firstly, the atmosphere was becoming friendly and relaxed as a result of such questions, and students were delighted to say more. Secondly, while answering these indirect questions, interviewees were also organising their own thoughts on learning. The answers to these questions were actually the basis for their understanding for learning, that is, answering the indirect questions made their arguments on learning clear and convincing. Thirdly, this method could also ensure the faithfulness of students’ statements, because students followed their previous answers and responses to the indirect questions rather than what the textbooks or others said. Therefore, the study suggests that while using the interview as a research technique,

indirect questions can play an important role in eliciting people's conceptions of certain phenomenon and should be utilised.

Previous researchers (Cope, 2004; Francis, 1993; Hasselgren & Beach, 1997) have criticised phenomenography for its lack of transparency in analysing and interpreting the data and for the fact that phenomenographers seldom emphasise this sufficiently. Therefore, Ashworth and Lucas (1998) recommend that the reporting of phenomenographic studies should be more explicit about the analytical process. Although several authors (Dahlgren & Fallsberg, 1991; Sjöström & Dahlgren, 2002) attempted to clarify and standardise some procedures within the process, it seems that few of them tried to specify steps in combination with an analytical framework, and its role has often been ignored. In contrast, a referential and structural framework is deliberately employed in this study, and a detailed procedure of data analysis has been presented using this interpretive tool.

Some critical issues were also addressed and systematically reviewed during the data analysis in this study, namely, the relationship that should be emphasised (the subject-phenomenon relationship), the pool of meaning or whole transcripts, mixed conceptions in responses, and a collective rather than an individual level data analysis. Different solutions were compared and contrasted and distinctive interpretations were reviewed, based on which I clarified my practice in this study. Previous researchers may have also noted these aspects, but they only covered some of them partially and gave little in the way of further explanations.

The study confirms that using the referential/structural framework to analyse conceptions of learning is helpful and beneficial in phenomenographic research. The framework could help to provide insights into the nature and characteristics of each learning conception, as well as guaranteeing the quality of developing conceptions. Explicitly employing this theoretical framework, this study pays close attention to not only the variations but also the nature of IET students' experience and understanding

of learning. The identification of the meaning aspect as well as the internal horizon and external horizon enables deep and profound thinking. A particular conception is not what I think it should be, rather it ought to include clear referential and structural aspects and the relationship therein. Only in this way can it be named as a conception. Such an identification process, to some extent, assures the rigour of phenomenographic study.

Finally, introducing phenomenography to HE internationalisation expands the research scope/context of this approach. Most phenomenographic studies have been carried out in a single country representing a sole cultural environment, for instance, Australia (Boulton-Lewis, 2000), Finland (Asikainen et al., 2013, Virtanen & Lindblom-Ylänne, 2010), Ireland (Byrne & Flood, 2004), Nepal (Dahlin & Regmi, 1997), Portugal (Duarte, 2007), Turkey (Sadi & Lee, 2015) and the UK (Marton et al., 1993). There is also a small number of comparative studies conducted in more than one country (Dahlgren et al., 2006; Purdie et al., 1996). Apparently, the cross-cultural learning and teaching environment can hardly draw phenomenographers' attention and there seem to be very few studies concerning this particular type of context. In this sense, this study extends the research context of phenomenography. The phenomenographic approach is used in a cross-cultural learning and teaching context, where eastern learners meet with western teachers in HE. This study also calls for the necessity of enriching phenomenographic studies in this area due to the unprecedented development of internationalisation and transnational cooperation in HE.

8.5 Contribution to HE internationalisation research

The contributions of this study to HE internationalisation research are twofold.

The first contribution lies in locating phenomenographic learning conception studies in the internationalisation context. Research of the internationalisation of HE is a

particular area “drawing from a broad range of disciplines and research domains” (Kehm & Teichler, 2007, p.266). The research approach and methodology have not significantly changed over time; some like discourse analysis have been linked to policy, while others have been typically qualitative or quantitative methods, such as interviews and questionnaire surveys (Kehm & Teichler, 2007). Since the phenomenographic approach has seldom been linked to the internationalisation of HE and vice versa, this study attempted to introduce phenomenography as a research approach to study learning conceptions in a cross-cultural environment. The employment of a phenomenographic approach as shown in this study has been proved to be fruitful. Based on the contribution to the understanding of conceptions of learning, this research manifests that a phenomenographic learning conception study conducted in a particular cross-cultural context may generate something different. New learning conceptions are found and also new insights into familiar and well-established conceptions are provided.

Secondly, the focus on students’ conceptions of learning demonstrates that there is another way to research internationalisation of HE, that is, a micro-level investigation. While the body of literature on various aspects of HE internationalisation is growing, many studies are dominated by the political, institutional and organisational perspectives, whereas less studies concern “the core higher education activities of teaching and learning” (Luxon & Peelo, 2009, p.51), and even fewer have been undertaken from a micro-level student’s perspective (Wihlborg, 2009). Wihlborg (2009, p.118) claims that “we need to make a shift in stance from an overall external perspective to a relational (non-dualistic) and experience-based perspective”. This study advocates Wihlborg’s argument and uncovers the IET learners’ ways of conceptualising learning in a Chinese-Australian cooperative programme by taking a second-order perspective. The research sets out to complement macro- and meso-level research of HE internationalisation by providing micro-level insights into students’ conceptions of learning. As the key stakeholder of the CFCRS programme, the IET students are the ultimate recipients of HE internationalisation and their learning

conceptions should be known.

8.6 Implications for learning and teaching in the CFCRS programme

The CFCRS programme is an important implementation strategy of the internationalisation of China's HE. A review of the literature indicates that, within the research area of HE internationalisation, Chinese academia focuses intensively on the macro level. Researchers are interested in 'big issues' such as policy, development and management (Li, 2009; Lu & Kang, 2015; Shen, 2014), but the essence ultimately lies in 'small issues' such as learning and teaching, which are the key elements for understanding the impact of the implementation of internationalisation (Lewis et al., 2013; Luxon & Peelo, 2009). As Lewis et al. (2013) observe, the paramount element of any education is often what happens in the classroom. In a way, the present research complements macro-level analysis with micro-level investigation.

The results finally obtained are not optimistic, since quantitative conceptions have a more dominant position. According to the brief statistics, 19 students expressed Conception A (learning as language improvement), 20 expressed Conception B (learning as an increase of knowledge and skills) and 16 expressed Conception D1 (application without understanding), all of which are very basic low-level ways to experience and understand learning. On the other hand, some meaning-seeking-related conceptions had relatively fewer supporters. These IET students in the CFCRS programme clearly demonstrated an over-reliance on elementary and less advanced learning conceptions, whereas the pursuit of meaning was ignored and understanding, insight and reflection seemed to be downplayed.

As an important category of learning conceptions, quantitative conceptions are indispensable and may also have a significant function. However, it would be very problematic if such conceptions dominated and misled learners' thoughts and

behaviours.

As discussed in Chapter 3, students' conception of learning will influence their learning approaches and further the quality of learning as a whole as demonstrated by a number of researchers (Duarte, 2007; Edmunds & Richardson, 2009; Ellis et al., 2008; Gibbs, 1995; Marton & Booth, 1997; Van Rossum & Schenk, 1984). The quantitative conceptions are at a low level and they are a significant factor resulting in surface learning and inhibiting deep approaches to learning (Turner & Baskerville, 2011). The learners may "fail to gain deep understanding of the subject content and will lack the forms of knowledge, skills and competencies" (Byrne & Flood, 2004, p.35). The qualitative or transformative conceptions facilitate a deep approach to learning, with students being "more likely to engage in deep learning resulting in desirable learning outcomes" (Byrne & Flood, 2004, p.35). Although the surface/deep division appears to be somewhat problematic and debatable (Haggis, 2003), deep approaches to learning are more favourable in a general sense. More sophisticated conceptions should be developed if deep approaches to learning are to be attained.

Thus, the student participants in the CF CRS programme are advised to have more advanced qualitative or transformative ways of understanding learning. The object of learning is the "development of a certain powerful way of experiencing the phenomenon in question" (Pang & Ki, 2016, p.328). It is necessary to improve the teaching and learning environment in order to achieve this. Efforts ought to be made in terms of teaching, curriculum and assessment (Marshall et al., 1999; Ramsden et al., 1993).

The lecturers working in this CF CRS programme are advised to accept the proposition that learners may understand or experience things in qualitatively distinct ways and learning for meaning is better than learning to pick up pieces of knowledge and satisfy external requirements (Bowden, 1990; Trigwell et al., 2005). Phenomenographers contend that the improvement or development of learning is viewed as "the widening

of a person's ways of experiencing or understanding the object of learning” (Paakkari et al., 2015, p.12). Educators should be aware of the importance of students’ ways of comprehending learning and that it is both appropriate and possible for teaching practice to upgrade these conceptions to a more sophisticated level to enable students to see their learning in a “qualitatively more advanced, powerful, or complex” (Paakkari et al., 2015, p.12) way. The success of learning and teaching improvement in the CFCRS programme relies on lecturers’ understanding of students’ learning and how the lecturers can facilitate learning in more advanced ways. Teaching is expected to expand learners’ awareness so that it can be developed and moved to a higher level and the expansion of conception can thus be achieved (Åkerlind, 2008).

The holistic picture of the qualitative ways in which students conceptualise their learning offers the potential to change the design of the curriculum and the instruction of knowledge in educational practice. The variations of learning conceptions identified in this study can help to facilitate the improvement and reform of IET course design in the CFCRS programme investigated. Educators are advised to take into account the findings made in this research while designing the IET courses. The aim is to make sure that “the objectives of the curriculum and the levels of understanding which students must achieve are clearly stated” (Byrne & Flood, 2004, p.35). Additionally, the assessment methods also need to be changed to be compatible with the improvement of teaching and curriculum. The assessment techniques are expected to test how successful students have met the education objectives as much as possible (Byrne & Flood, 2004).

In conclusion, advancing conceptions of learning is challenging and there seems to be no unique solution, but it is necessary to construct a productive teaching and learning environment integrating teaching, curriculum and assessment as discussed above in this section to facilitate the achievement of high-level learning conceptions. Only in such an environment can students be motivated to learn for understanding and advance their conceptions of learning (Byrne & Flood, 2004).

8.7 Limitations of the research

In reflecting on the whole research, I am aware that there are several limitations for this study, some of which might have to do with the research approach adopted, while others are relevant to the research context.

The first limitation is the inability to explain why these students had certain conceptions. Phenomenographic studies are not tasked with exploring the reasons for certain conceptions held by participants, because “[p]henomenography does not gather data which would allow it to attribute cause nor is it interested in why students may possess certain conceptions of a phenom[enon].” (Lucas, 1998, p.28). Similarly, Säljö (1988, p.37) contends that “assumptions concerning the possible source of variations in conceptions held by people are postponed and considered as an issue for the theoretical framework utilised in a specific research project”. Although the participants’ statements may indicate and explain the reasons for perceiving the phenomenon in a certain way, Lucas (1998, p.30) argues that researchers cannot view them as causes; they are merely “part of the meaning of the matter under investigation within the experience of the student”. As Åkerlind (2005a, p.7) notes, the nature of phenomenographic analysis is “descriptive or interpretive rather than explanatory”, that is, the focus lies in “investigat[ing] what sort of differences in meaning and understanding occur across individuals rather than to attempt to explain or investigate causes of these differences” (Åkerlind, 2005a, p.8). Dahlin (2007, p.328) contends that a basic assumption in phenomenography is that “describing conceptions was not the same as describing reality, or the possible reasons why people held certain conceptions” and it does not “belong to phenomenography proper, which made a clear distinction between a first-order perspective, studying reality, and a second-order perspective, studying conceptions of reality”. Nonetheless, Lucas (1998, p.30) considers that despite the deficiencies, the conceptions found in phenomenographic studies provide a point

of departure for subsequent research “on the cause of such conceptions and how they might be changed”.

The second limitation is the single and limited disciplinary context. The background in this study is set within International Economics and Trade, a business-related subject. The research findings capture the variations in IET undergraduates’ conceptions of learning in a Chinese-Australian cooperatively-run programme. As an implementation strategy of the internationalisation of HE in the Chinese context, the CFCRS programme covers a wide range of disciplines as stated in Chapter 2. However, the current study only focuses on the most popular subject of IET, which implies a limited disciplinary scope. While this research maps a general picture of IET students’ conceptions of learning in general, the question of how learners in different disciplines perceive their learning remains unknown. Conceptions of learning in a general sense, which is the central concern for this study, might be influenced by the disciplines students are learning. Several researchers argue that conceptions of learning can be academic domain-dependent (Eklund-Myrskog, 1998; Lin & Tsai, 2008, 2013; Tsai, 2004).

The third limitation is relevant to language. Since the participants’ linguistic ability was not as good as expected, I decided to use Mandarin Chinese to communicate during the interviews, to avoid the interviewees being confronted with a linguistic barrier, especially when facing so many primary and follow-up questions with strong reflective and thorough characteristics. As a result, it was obvious that all the students felt very comfortable and relaxed during the conversations. However, this decision caused some problems in the analytical procedure. All the recorded interviews were transcribed verbatim following the phenomenographic data analysis principles and then analysed. This involved translating some key and useful comments into English, which may have reduced the accuracy of the results (Varnava-Marouchou, 2007). In addition, the linguistic way of expression may be quite different between the East and the West, even when describing the same meaning. The translated excerpts may seem strange from a native English speaker’s perspective, but they are quite normal for the Chinese students.

Like most phenomenographic learning conception studies, the present research is qualitative in nature. Even though data has been collected through reflective and in-depth interviews and interpreted in an iterative and comparative way, the subjects or interviewees are limited in number. Moreover it “suffers from the inherent subjectivity of the analytical procedure” (Makoe et al., 2007, p.307). As Entwistle (1997b, p.128) notes, quantitative researchers often “question the subjectivity involved in establishing categories of description”. The creation of the *Conception of Learning Inventory* renders it feasible to research learning conceptions from a quantitative paradigm. While a majority of studies on conceptions of learning from the phenomenographic perspective are undertaken with small samples, it is expected that the questionnaire could play an important role in large-scale surveys. The results of such massive investigations can provide a basis for the improvement of conceptual change and teaching and learning in higher education (Peterson et al., 2010). New learning conceptions might also be found if the paradigm is changed, as “conceptions of learning depend on the instrument used to measure them” (Makoe et al., 2007, p.317). Nonetheless, such questionnaire should be carefully examined and amended because of its defects as warned by Peterson et al. (2010).

8.8 Recommendations for future research

The research context and disciplinary background can be altered so that readers can understand learning conceptions in the internationalisation context from a more holistic perspective. The present research was conducted within the environment of a CF CRS programme due to its prevalence. The programme is a presentation of the internationalisation of HE in the Chinese territory. However, other forms of internationalisation may also be of interest, for example, the increasingly popular branch campus of a British or American university, where the degree of internationalisation would be stronger. As a consequence, it is recommended that

follow-up studies may choose to change the circumstances. The disciplinary background in this study was set within International Economics and Trade, a business-related subject. Further research could examine and contrast the similarities and differences of other disciplines in terms of the results. It would also be of interest if future researchers blurred the disciplinary boundaries by recruiting participants who study diverse subjects, including natural sciences, humanities and social sciences.

The appropriateness of the semi-structured in-depth interviews used in this study has been demonstrated. The participants could thoroughly discuss and analyse something by responding to both primary and follow-up questions, and their answers were able to clarify and reflect the interviewer's instant inquiries timely and deeply. However, this does not exclude alternative research methods; for example, open-ended questions could be utilised as a sound alternative to investigate a large number of students. Future researchers may choose to ask students to write an essay on their experience of a certain phenomenon. However, they may have to bear in mind that writing may limit the opportunity to ask the participants to say more about certain issues because it seems like a once-and-for-all deal, which could be a problem to consider.

Future research could be designed in a more dynamic way. Some qualitatively different ways or conceptions of a particular group of students in a CFCRS programme have been revealed in the present research. These participants expressed their conceptualisation of learning at a specific time and in a specific context, which implies a strong static characteristic. The different ways of experiencing or conceptions arrived at in phenomenographic research are unable to depict and reflect some dynamic changes in terms of subjects' experience, understanding and conceptualisation; instead they are simply snapshots that reflect the selected participants at a specific time (Loughland et al., 2002; Alsop & Tompsett, 2006). Åkerlind et al. (2005, p.81) similarly contend that the transcripts only "represents a snapshot of the ways of experiencing the phenomenon by a particular group of people at a particular time and in response to a particular situation". Nevertheless, it is likely that conceptions may be developed and

changed over time, and this could also be researched and verified by phenomenography (Eklund-Myrskog, 1998). Thus, it is expected that future phenomenographic studies could be designed to be more dynamic to examine the changing or developing ways of experiencing something. The results of such research may have strong implications for improving the quality of teaching and learning.

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Appendix I. An Example of Chinese-Foreign Cooperatively-Run University

The University of Nottingham Ningbo China

- Established in 2004
- The first Sino-foreign university, with the full approval of the Chinese Ministry of Education
- Run by the University of Nottingham and Zhejiang Wanli Education Group
- Offer degree programmes from The University of Nottingham, taught in English, which are subject to the same quality assurance processes as in the UK.
- President: Professor Yang Fujia; Vice-Chancellor: Professor David Greenaway
- 6,341 students: 5,649 students on undergraduate programmes, around 558 are international students from 43 different countries around the world. Domestic students come from 28 (out of 31) provinces in China. 549 are postgraduates studying at master's level.
- Around 600 members of staff who come from more than 40 different countries and regions.
- The University is situated in a 144 acre (584,666m²) campus in Ningbo, Zhejiang province.
- Has three faculties: Arts and Humanities, Social Sciences, and Science and Engineering, with 11 academic departments.
- Offer 31 undergraduate courses and 14 postgraduate courses.
- The University has ten research centres and institutes.
- Was awarded a licence to grant PhDs in December 2008 and now has 3 PhD students.

Source: <http://www.nottingham.edu.cn/en/index.aspx>

Appendix II. An Example of Affiliated College

University of Michigan - Shanghai Jiao Tong University Joint Institute

- Established in 2006 by the two universities
- Objectives:
 - To construct a model university which emulates the successful experience of the University of Michigan?
 - To serve as an educational base for facilitating the growing trend of global education and encouraging research collaboration.
- Structure of Management: With the full support of the University of Michigan and Shanghai Jiao Tong University, the Joint Institute is managed independently while encouraging creative thinking and ground-breaking innovation.
- Mode of Operation: Utilizing the best practices of top international universities as well as pioneering new methods to hire and evaluate faculty and create an innovative management system.
- International Cultivation: Students are educated and prepared for a global workplace – from the selection of faculty to models of international collaboration and internship in international environments.
- The Education System: The Joint Institute is pioneering an independent educational system within Shanghai Jiao Tong University.
- The Management System: The Joint Institute is an autonomous and unique organization. Its independent management structure, financial management, faculty hiring and evaluation system have been developed progressively under the guidance of both the University of Michigan and Shanghai Jiao Tong University.
- Research and Academic Focus: Cooperation is especially emphasized in the area of collaborative research between the Joint Institute and both partner universities.
- Education Method and Culture: Cooperation with both universities allows the Joint Institute to create new cross-subjects with the introduction of the University of Michigan’s lecture system.

Source: <http://umji.sjtu.edu.cn/about/>

Appendix III. An Example of CFCRS programme

Shenyang University of Technology (SUT) & Griffith University (Australia) (GU) '2+2' Programme

- 2+2 Education program for undergraduates in business-related subjects held by SUT and GU
- Officially authorised by the Ministry of Education (MoE) China, started in 2002
- 2 years of study in China & 2 years of study in Australia
- Over 900 students have been studying in Australia as a result of this programme
- Tuition fee: about £1,800 per year (in China)
- Subjects: accounting, international economics and trade
- 2 years of study in China can get 1/3 of the whole credits
- Graduates can get degrees from both universities
- Certificates are authorised by the authorities
- Students who want to study abroad have to pass the IELTS
- Language training is conducted in SUT
- Students are taught by both domestic and foreign lecturers
- The programme has successfully passed the assessment held by the MoE

Source: <http://iec.sut.edu.cn/zsgz/ShowArticle.asp?ArticleID=54>

Appendix IV. Research timetable

Time	Activities
December 2012-August 2013	Background reading
September 2013-October 2013	Literature review
November 2013	Upgrading
December 2013-January 2014	Trial interview
January 2014-March 2014	Trial interview
April 2014-May 2014	Pilot study
June 2014-September 2014	Formal interview
October 2014-November 2014	Transcription
December 2014-September 2015	Data analysis
October 2015-May 2016	Writing up
May 2016-June 2016	Final draft submitted to the internal reader
June 2016-September 2016	Final draft amended
2 nd September 2016	Thesis submitted

Appendix V. Interview schedules for the trial, pilot and main study interviews

Trial interview questions:

Main questions:

1. What do you mean by learning?
2. What are you trying to achieve while learning?
3. How do you know when you have learnt something?

Follow-up questions:

1. Could you explain further?
2. Could you give me an example?
3. Why do you say/do it that way?

Pilot study interview questions:

Main questions:

1. Why did you choose this discipline?
2. Which course impressed you most? Why?
3. What do you mean by learning?
4. What are you trying to achieve while learning?
5. How do you know when you have learnt something?
6. Are there anything else you want to say?

Follow-up questions:

1. Could you explain further?
2. Could you give me an example?
3. Why do you say/do it that way?
4. You just mentioned X, what do you exactly mean by that?

Main study interview questions:

Main questions:

1. Why do you choose this international programme?
2. How do you understand the programme/subject you have chosen?
3. What do you want to achieve? What is your aim for learning? Why?
4. Which course positively/negatively impresses you most? Why? Could you describe it?

5. What do you mean by learning? How do you understand the concept of learning?
6. How do you go about learning? Why?
7. What do you mean by 'having learnt'?
8. How do you know when you have learnt something? Why?
9. What have you gained during learning?

Follow-up questions:

1. Could you say more about that?
2. Could you give me an example?
3. Could you explain that again in different words? Why did you say that?
4. You just talked about X, what do you exactly mean by that?
5. Why did you talk about Y in that way?
6. You said A and also said B, what is the relationship between the two?

Appendix VI. Consent form

No. _____



Leading education
and social research
Institute of Education
University of London

Name of Researcher: Xiantong Zhao
E-mail: zhaoxiantong1981@gmail.com

Consent form

Qualitatively Different Ways of Experiencing Learning: A Phenomenographic
Investigation of International Economics and Trade Undergraduates' Conceptions of
Learning in a Chinese-Australian Cooperative Programme

April --- September 2014

I have read the information sheet about the research. (please tick)

I agree to be interviewed (please tick)

I understand that my participation is voluntary and that I am free to withdraw at any
time. (please tick)

Age _____

Gender _____

Year of study _____


Type of enrolment _____

Signed _____

Date _____

Appendix VII. Information sheet

Page 1



Leading education and social research
Institute of Education
University of London

Qualitatively Different Ways of Experiencing Learning: A Phenomenographic Investigation of International Economics and Trade Undergraduates' Conceptions of Learning in a Chinese-Australian Cooperative Programme

2012-2016

Information for IET programme participants
Please will you help with my research?

My name is Xiantong Zhao, and I am a PhD candidate at the UCL IOE.

This leaflet tells you about my research. I hope the leaflet will also be useful, and I would be pleased to answer any questions you have.

Why is this research being done?
This study intends to uncover IET students various ways of experiencing learning or conceptions of learning in the Sino-Australian cooperatively-run programme, which may help to improve the quality of learning and teaching.

Page 4

Do you have to take part?
You decide if you want to take part and, even if you say 'yes', you can drop out at any time or say that you don't want to answer some questions.

You can tell me that you will take part by signing the consent form.

Will you know about the research results?
I will send you a short report by 2017.

Who is funding the research?
No agency is funding this research.

Thank you for reading this leaflet.

Researchers' name: Xiantong Zhao

Address: 6A-301 Majiapu Xilu 32Haoyuan Fengtai Beijing

Email: zhaoxiantong1981@126.com

Telephone: 15901194666

Page 2

Who will be in the project?

Those students who are currently in this Sino-Australian cooperatively-run programme, including undergraduates from all the four grades. At least 20 will be selected.

What will happen during the research?

During the research, a series of semi-structured interview between 30 and 50 minutes will be carried out. Data will be collected for this study only, and the readers are my supervisor, an internal reader, a proofreader and the examiners.

What questions will be asked?

The following questions will be asked:

1. Why do you choose this international programme?
2. How do you understand the programme/subject you have chosen?
3. What do you want to achieve? What is your aim for learning? Why?
4. Which course positively/negatively impresses you most? Why? Could you describe it?
5. What do you mean by learning? How do you understand the concept of learning?
6. How do you go about learning? Why?
7. What do you mean by 'having learnt'?
8. How do you know when you have learnt something? Why?
9. What have you gained during learning?

Page 3

Could there be problems for you if you take part?

I hope you will enjoy talking to me. Some people may feel upset when talking about some topics. If they want to stop talking, I will stop. You can feel free to quit the conversation at any time.

Will doing the research help you?

I hope you will enjoy helping me. You will be stimulated to reflect on your personal learning experience and ways of understanding learning, which you seldom considered before. This may help to clarify and re-conceptualise your thoughts and activities on learning.

Who will know that you have been in the research?

Your classmates may know about this. But I will not tell them or anyone else what you tell me.

I will keep records and notes in a safe place, and will use numbers rather than your true names in my reports – and the name of the university – so that no one knows who said what.

Appendix VIII. An example of interview transcript with annotations

Date of interview: 23/5/2014
Place of interview: Xingyuan Cafe
No. of the Participant: S11
Length of interview: 40 minutes

Interviewer: Why did you choose this CFCRS programme?

*Very realistic
learning objectives*

S11: My mum thought this programme to be promising. She thought that the programme was operated cooperatively and I might learn more, and I can get dual degrees. But in fact I did not select it because of my dad's suggestion, I was actually relocated to be here. The university asked me if I was willing to study in this programme. I negotiated with my mum and then choose it. My mum considered that the bilingual teaching environment could benefit my English and further studying abroad, so that was why I'm here.

Language is an important factor.

Interviewer: What do you want to achieve in learning? *attractively potential students*

*English is as important
as specialised
knowledge.
It's a primary
concern for this
participant.*

S11: Some basic specialised knowledge of course, and then English. Because I want to study abroad, and I feel that I can exercise myself during the lessons taught by the Australian teachers. Also there will be some specialised curricula, which could benefit my job hunting and professional development. In the beginning I simply thought that I can learn more and better when I choose the cooperative programme. Because it contains English textbooks and you may learn more English materials.

*to choose the
CFCRS programme.*

Interviewer: What is basic knowledge?

S11: It's specialised knowledge like basic macroeconomics and some specialised courses.

Interviewer: Why do you emphasise basic knowledge?

S11: Because of university learning. I understand this programme from a specialised perspective. There may be some capabilities development in university, but that has nothing to do with this subject.

*most participants agree with this. It's a general impression of
this CFCRS IET programme by the
students.*

Interviewer: What is this subject about?
S11: I think we can learn very broadly in this programme, but lack of depth. For example, we may learn something about accounting, management accounting and corporation finance, but we don't learned them so thoroughly as the accounting students do. But this extensive learning will enable you to find

your interests and decide your personal research interest in postgraduate study. Also you may find your tendency in the future job. For example, we've been learning business English, which asks you to make a presentation and report on market survey. I think this will benefit your research, study and job. For example, the interviewer may ask you to do an English presentation, which you've done before. So you can do it skilfully and completely.

Interviewer: What is skilfully? *be clear about the knowledge and procedures that are*

S11: I think it's you're clear about what you want to do. *going to be used.*
For example, they ask you to complete a report or presentation, then you should know what the clients' demands are and what *practice makes perfect.*
market survey you need to do. I know more strategies than *the experience will be*
others do, because I did a presentation in my university *helpful for future job.*
learning.

Interviewer: What do you think of the courses you've taken?

S11: Some courses were given well, but others ... I think it may be due to the teaching approaches. For example, last semester the finance teacher didn't say what had been mentioned in the textbook and he just say what came up to his mind. He was an associate professor. Our dean was the same, just taught important things. But other teachers just repeat what the textbook says. *relate teach's styles*
In fact it's difficult to judge which is good or bad. *to the nature of knowledge.*
Some university knowledge is basic and you have to grasp it, *others are extension.* We have lots of specialised and compulsory courses. But there are some overlaps between them, for example, Import and Export Practices in last semester and this semester we have International Trade. We also do business simulation, which will draw on Import and Export Practices. *the student is able to see the connection between different courses taken in various learn's stages.*

previous learning experience may have an impact on university learning.

Interviewer: What teaching method do you like most?

S11: During my first year of study, I like the teacher to repeat what the book says. It may be because of the influence of secondary school, that is to say, I must find out what the teacher says in the textbook, otherwise I would feel very anxious. But later I think if the teacher says more, maybe I can get more. Although the knowledge might be surface, I've heard of it. I know it.

Interviewer: What is knowing?

S11: I think it's shallow. I may search more if I'm interested in

certain topics.

Interviewer: What is going further? *knowing → thorough understanding →*

S11: I have a thorough understanding of this issue and I have *personal understanding*.
my own opinion, I know it well and then I may actively collect
some information and form my own view.

To collect information, or knowledge accumulation is important in

Interviewer: What is thoroughness?

S11: For example, the origin, process and result of this issue, *fully personal understanding*,
and who has posited what ideas. *could be the object of learning.*

Interviewer: Which course impresses you most? Why? Could you describe it?

S11: Last semester we had a gentle Australian teacher, who often played games with us. During that time, we were asked to write lots of essays. The teacher would ask if certain sentences in our essays were our viewpoints or facts, he might ask you to describe, then we played games, and then we were divided into different groups, and then he let us guess. For this semester, the most impressive course requires us to make a report in the beginning. You have to pick up an existing brand and try to find its deficiencies. After that, you're asked to design a similar brand, which is also your personal brand. In that course, the teacher exhibits us top 100 brands in the world and shows us a video. We feel that it is very interesting and funny. We talked a lot about those brands, also the teacher tells something about them. I know lots of brands in that course, and this lesson is interesting. We also think that the ads the teacher shows is attractive. First the teacher shows us an ad and then he says something about it. Second we discuss it and this is interesting. We can quickly digest and understand it.

parts of the internal horizon of understanding.

from course experience to learning-related issues.

Interviewer: When you mentioned digestion and understanding, what do you mean?

S11: Take the AIDI for example. I have a thorough understanding on this model is that I knew what it means. I know how to express it when I make reports and presentations. I know how to do it in terms of the four aspects when designing an ad.

understanding is a vague word and can be used in different ways. It doesn't simply mean fully about the underlying meaning of something.

It could also be related to "apply" and

a follow-up question to ask student to clarify her understanding of 'understanding'.

Interviewer: Sounds like real application, right?

S11: Yes.

knowing about "how".

intentionally separate understanding from memorisation.
could be one category of memorisation, but could the two

Interviewer: Which course given by Chinese lecturers *be connected to* impresses you most?

S11: Last semester we had a course named Civil and Commercial Law. The teacher gave a lot of cases, I felt ... law was actually boring, because we were students majored in science. I didn't like liberal arts and I hated memorising things. *from another category of memorisation?* Civil and Commercial Law was in fact boring, it contained many kinds of articles of law. The teacher often posed a case which included various relationship and you often tried hard to make it clear. In the end I felt this process to be interesting (laugh).

Interviewer: Why did you think it was interesting?

S11: We felt painful when doing our first assignment on Civil and Commercial Law because of fragmentary pieces of knowledge. We didn't know how to analyse the cases, and the teacher didn't explain them thoroughly in class. All of my roommates were doing online research, or asking their friends who were studying law. I was just keeping searching on the Net. One case still remains fresh in my memory: the case asked the ownership of a test-tube baby. I searched a lot regarding this issue and then found a real case. I thought this process was very interesting and I learned a lot from it. *fresh and new information and knowledge*

Interviewer: You learned a lot from it? *act.* *is the object of learning.*

S11: Yes. Because you would search a lot. When doing assignments, sometimes you search some materials and get to know about something. Gradually you may find certain information to be interesting. When listening to the teacher in the class, I'm trying to make sense of what the teacher says, for example, I understand a concept in my own way. But I cannot express it very accurately. I have to attend the exam anyway, for example, the exam requires me to explain a concept, so I need to memorise it and recall it when necessary. After all, understanding is not everything; you have to remember some things. *the context (external horizon)*

Interviewer: How do you understand the understanding-memorisation relationship? *the act of learning.*

S11: I think for economics, you have to understand theories through real cases. For some equations in accounting, you need to calculate and analyse statement. Only you comprehend it can you understand how to use it and how it comes about. But I feel memorisation is rote learning, *referential aspect.* remembering some concepts, and there is not much technical

the object of learning (part of the internal horizon).

-there's a gap between what is understood and what is memorised. The way differentiate memorisation from understanding. the two conceptions are somewhat different.

memorisation can be achieved in a mechanical way.

external causes

for sometimes they're

memorisation is the precondition for application.

memorise first, and then apply.

content. could be at a low level.

Interviewer: Do you think understanding and memorisation is contradictory?

S11: I can remember it despite that I don't understand it, it's only a sentence anyway. I have no choice, I have to attend

exams. You may not be able to understand it despite memorising it, but you can memorise it easily if you understand it. she can remember it without knowing about the meaning.

Interviewer: Could you memorise it first and then understand it later? The process is reversible. remember it and

S11: Yes! This is a process. After I memorise something and then you give me a case to analyse, I can understand it more.

The other thing is applying after memorising. Take the import and export practice and SIMTRADE for example. It was rote learning in the past. The teacher taught and you listened to

him/her and then you memorised it. There was no practice and you had to keep the procedures in mind. But I could finish

the whole process based on the use of 'SIMTRADE'. When the lecturer talked about postal order in class, you could immediately know what sheets should be submitted and what matters should be noted.

Interviewer: We've talked a lot about your learning, what do you mean by that? act of learning.

S11: (Learning is) to grasp certain knowledge or skills with the help of lecturers' explanation and students' collecting information.

Interviewer: What is grasping?

S11: know this concept, then I can make a bill.

Interviewer: So it seems grasping means application?

S11: Yes.

Interviewer: Anything else?

S11: I truly know some concepts, like some terms and their explanations. For example, clean bill of lading means there is no damage when the goods are transported.

Interviewer: How do you grasp it?

S11: I memorise it.

keep it in mind.

A statement of the U-M relationship:

Sometimes the two are not totally related, as

smoothly and permanently.

than make sense of it.

This kind of software helps students to

better apply what has been taught

in class. But this application is confined to an academic context.

object of learning

being able to put something to use.

knowledge is increased.

meanly aspect.

I feel that the answer and the question are somewhat mismatched. The student seemed to give an irrelevant answer.

Interviewer: And then?

S11: I know it when I remember it, I know what clean bill of lading is. I think real grasping is ... for example, I've learned in the class how to make a report, what do I need, and then you ask me to do a similar one. I know how to do it this time. Or like the SIMTRADE, from now on I will know the process is and independently complete a trade procedure.

Seems this student began to repeat what she said early in this interview. There seems to be no new ideas or opinions that came to her mind.

Interviewer: How do you go about learning?

S11: Maybe I'm more independent, and I tend to know things by myself instead of asking someone else. If I come across really difficult problem, I have to ask for help. For most assignments, if I cannot figure them out, maybe I'll do some online search. But for some course like Civil and Commercial Law, I often read a lot independently and solve a question by myself. I learn how to do the SMITRADE by myself. The SIMTRADE is a virtual software that simulates the foreign trade practice. It is composed of three roles: the importer, the exporter and the industry. There is a commercial relationship among the three parts. Your task is to make business so that your level could be enhanced.

Interviewer: Why do you like learning independently?

S11: I think it's because of personality. I think it's unnecessary to trouble others if you can solve some problem by yourself. But if I can't, I'll ask for help.

Interviewer: How do you know when you have learnt something?

S11: You can check it in the exams.

Interviewer: Only in examinations?

S11: Yes. The other thing is, for example, when the news reports something, some concepts may suddenly come into your mind. Then you can be clear that you've mastered them. Perhaps you had no idea what the financial news was about before, but now you're able to understand it to some extent.

Application can be a reactive process, triggered by some occasional phenomena in real life situations.

Interviewer: You said 'grasping' and also said 'having learnt', what is the relationship between the two? Are they the same?

S11: Take the SIMTRADE for example. Previously I've learnt some knowledge about import and export trade, but I was not very skilful when applying it. That is to say, when I first do it, I didn't know about the procedures. Although I did know it, I

From her perspective, 'having learnt' simply signifies that one knows something, whereas 'grasping' means one is able to use knowledge neatly, was unskilled during the operation. After all, I think theory is different from actual practice. 'grasping' goes much further than 'having learnt' does. 'grasping' can be tested by means of practice.

All of these things gained are closely related to academic learning.

Interviewer: What have gained in learning?
 S11: The first thing is specialised knowledge. The other thing is that maybe I can learn more independently and search information. Now we're required to write essays, which need literature review and the ability to summarise. Our capacity of all aspects has been enhanced.

The participant focused herself on academic learning only. So most learning conceptions are confined to academic/university learning, which is the external horizon.

Interviewer: What do you mean by enhancement?
 S11: We can do something which we cannot in the past. Although we cannot do it very well, we grasp a skill. Surely you'll write more essays and search more materials in the future, and you'll become more and more skilful. The idea in your essay would be different as well.

Interviewer: Is the CFCRS programme different from the domestic programme?

S11: I feel that we learn more English than the English major students do. I think that my English is better (laugh). We truly have many many English lessons taught by both Australian and Chinese lecturers. So I feel our English may be good. Our ability of using English to analyse economic issues is much better. This is what I know.

Again, English and linguistic training and achievement is emphasised.

Interviewer: OK. I think that's all for our conversation. Thanks for your time and participation!

Frequency of key words:

Key words	Learning	Knowing	English	Knowledge	Memorising	Applying	Understanding	Idea
Frequency	27	23	12	10	12	4	19	3