

Testing times: The impact of Chinese undergraduate students' perceptions of two examination formats on their motivation, study strategies, and approaches to learning

by

Carolyn Frances Tait

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Abstract

Chinese undergraduate students from mainland China, Hong Kong and Taiwan may have different language backgrounds and previous assessment experiences compared with most students studying in a western university. This mixed methods study examines their perceptions of how two examination formats – multiple-choice and essay questions – impact on their motivation, approaches to learning, and study strategies at a New Zealand university.

Quantitative data were gathered using a modified Biggs' two factor study process questionnaire and a modified Patterns of Adaptive Learning Study questionnaire. Survey results were integrated with qualitative interview data gathered and analysed using a constructivist version of grounded theory.

The participants reported combining deep and surface approaches to learning for both examination formats, preferring deep approaches. In comparison to study strategies used for multiple-choice examinations, more deep strategies were reported for essay examinations. Participants described combining memorisation with understanding in a sequence of study strategies for both examination formats. Predicting and practising both types of examination questions allowed participants to align their perceptions with possible examination requirements. Participants' confidence in their English language ability impacted on memorisation for essay questions.

Analysis of the findings supports a model of the interrelationship of motivation, approaches to learning, calculating to develop perceptions of task demands, and the development of discipline-specific discourse skills in English. Perceptions of examination formats impact on study strategies with deep and surface strategies linked through practising. The implications of these findings for assessment of culturally and linguistically diverse tertiary students support the use of well designed multiple-choice questions in examinations to promote deep learning for these students, combined with formative assessment.

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Chapter One

Introduction

This study investigates the processes of learning and assessment for Chinese students at undergraduate level in a New Zealand university. It seeks to contribute to the research trajectory of the academic aspect of the internationalisation of higher education identified by Dolby and Rahman (2008). Within this area, there is a growing body of knowledge about the experiences of Chinese students and those of other Asian nationalities studying in western settings. It also seeks to add to the research on how assessment practices affect learning for one specific cultural group. The need for this research has been brought about by the internationalisation of education. By being aware of the Chinese students' perspectives of different forms of assessment, course designers can consider the impact of assessment on the approaches to learning, study strategies and motivation of these students.

The study aims to contribute to the theory and practice of teaching Chinese students in western universities. Gutierrez and Roggoff (2003) argue that it is useful to research “regularities in the variations among cultural communities” (p. 19) as opposed to investigating the traits of cultural groups specified by ethnicity. This definition enables the histories and the contexts of the participants to be considered and also the context as it is where the activity takes place. This study is placed within one university in New Zealand. Information about this changing setting is relevant to this study. The forces of internationalisation of education have been translated into a reality in New Zealand universities. This reality is evident in the cultural and linguistic diversity of the undergraduate student body. By examining the nature of internationalisation and the place of Chinese students in New Zealand universities, it is possible to identify the need for an evidence-based study to enhance teaching and learning by considering the effect of examinations on this group of students.

The internationalisation of education

As countries recognise the importance of participating fully in the global knowledge economy, there is a thrust to internationalise education. Diversity within student bodies is now seen not only as the norm, but also as a resource to enhance the learning of all students, especially in the development of intercultural skills, personal growth, and globally mobile professionals. While this is considered particularly relevant in business education (Cheney, 2004), it has much broader implications

across many disciplines. Diversity is not seen as an end in itself for educational institutions, rather as a tool for education (Chang, 2005).

However, the mere presence of diversity is not enough. Culturally diverse students want to make a contribution that is seen as useful and important to the learning process (Shinn, 2002). Internationalisation brings about opportunities for intercultural learning through interaction among domestic and international students. Interaction with different races and ethnicities is valued as a measure of engagement in learning in higher education (*National Survey of Student Engagement*, 2006).

As well as engagement through interaction, the presence of diversity within a student body creates a requirement to internationalise the curriculum. This is a complex, multilayered process involving management, programmes, courses, teachers and students working together to create an inclusive learning environment (Leask, 2003; Taylor, 2004). Action is required on a number of fronts including content integration, the knowledge construction process, and institutional and social structures that empower all students (Banks, 2004). Assessment is part of that process. It leads to graduation and to enhanced self-esteem for international students. However, for students who have different cultural backgrounds from the majority, assessment practices may bring about surprises because of lack of familiarity and hidden cultural assumptions. While there has been some evaluation of the cultural equivalence of different types of assessment for international and domestic students (De Vita, 2002), Stobart (2005) argues fairness of assessment in multicultural situations goes beyond the assessment itself. Fairness needs to be considered in terms of teaching, the curriculum, and the students' backgrounds. The perceptions of groups of international students, in this case, Chinese students allow the teaching and learning that are integral to internationalisation to be studied from the students' viewpoint.

The significance of Chinese students studying in New Zealand universities

The New Zealand Ministry of Education has set an agenda for internationalising education in New Zealand (Ministry of Education, 2007). Inherent in that agenda is attracting students from overseas to study in New Zealand and providing ways for them to achieve success. In 2007, there were 6,738 equivalent full-time (EFT) undergraduate students from the People's Republic of China in New Zealand universities. They formed the largest group of international students in terms of

country of origin. Taiwan contributed a further 208 students and was the 11th highest country in terms of numbers of international students (Ministry of Education, 2008). While the rapid rise in the number of Chinese students in the early years since 2000 have not been sustained, the overall growth in the number of students from mainland China since 2000 has been 287% (Ministry of Education, 2008). Chinese students who have changed their citizenship status to that of permanent residents of New Zealand and enrolled as domestic students, but who have a similar educational history to the international students, are not included in these figures. Their inclusion would swell the numbers of Chinese students even further. All of these students are now part of our diverse communities of learning in lecture theatres and tutorial rooms. As universities seek to internationalise their programmes, the presence of international students can provide both opportunities and challenges.

As students from different parts of the world seek to enhance their qualifications for future careers, western universities where the language of instruction is English have particularly benefited from increased international student enrolments. International enrolments generally bring additional revenue for institutions, especially where there are limitations on university competition for domestic students whose fees are subsidised by government (McGowan & Porter, 2008). Thus, places for international students in higher education have been increasingly viewed as a commodity earning export revenue at the national level as well (Haigh, 2002). While international students generate revenue for universities and foreign exchange for countries, universities have an obligation to ensure that the teaching context maximises the learning opportunities for these students as well as for domestic students to ensure the benefits of internationalisation are on-going and sustainable. The purpose of this study is to provide further understanding of how Chinese students view one important aspect of this teaching context, that of assessment. Their reports of how this impacts on their learning provide some factors that should be considered in ensuring assessment is appropriate for a diverse student group.

The aims of the research study

This study considers the impact of perceptions of examination formats on student approaches to learning in a western university for Chinese international students who have been targeted in the marketing strategies of universities, especially in Australia and New Zealand. By considering the impact examination formats have on the learning of Chinese students, the study seeks to provide knowledge that may assist in resolving the tensions created through the inclusion of Chinese students in

university courses. More knowledge is needed to find out how assessment practices can engage Chinese students in learning that will lead to the development of desirable graduate attributes. This knowledge could then be used within courses rather than adding additional supports outside courses based on a deficit model of Chinese students.

Learning in a western university ostensibly emphasises that graduates acquire the knowledge and understandings to think critically, make inferences and analyse information (Brockbank & McGill, 2007). Academic staff endeavour to foster independent learning, and universities expect students to “undergo a complex personal development process involving a change in perceptions, learning habits and epistemological beliefs” (Windgate, 2007, p. 395). This may entail a major shift in learning processes for students as they make the transition from previous educational experiences to the university environment. Most western universities where the language of instruction is English provide study skills courses, orientation programmes, extracurricular learning support programmes, and special support services for students who speak other first languages. These may, nevertheless, be limited in their effectiveness (Windgate, 2007). As student populations in higher education have become increasingly diverse culturally and linguistically, universities and academic staff are challenged to support the transition of these students and to facilitate their learning within and across programmes (McGown & Porter, 2008).

Staff may see themselves as victims who are forced to adapt courses so that international students can graduate successfully (Devos, 2003; Saravanamuthu & Tinker, 2008). Foreign students, especially those who have home languages other than English, may be considered as having a deficit because the students’ competency in English language use, approaches to study and study strategies do not seem to match those considered essential for study in a western university (Ballard & Clanchy, 1984; Samuelowicz, 1987). Universities endeavour to mitigate the effects of these perceived deficits through entry requirements for English language competency and foundation courses, bridging the gap between previous pre-university study in the students’ home country and study in the university environment in a new country and culture. Haigh (2002) describes this model as “Bringing the foreigners up to speed” (p. 37).

When a group of students is seen as needing additional resources to enable them to learn and adapt to context-specific assessment standards, more information is needed regarding the factors which impact on the learning of these students within

their courses. Assessment has a powerful effect on learning (Havnes, 2004) and has a role in bringing about behaviours associated with good learning (Biggs, 1998a). As universities place more emphasis on creating independent, reflective learners (including increasingly diverse student populations), clarification is needed regarding the connections between assessment and learning for international students.

This study addresses how Chinese undergraduate students' perceptions of two different examination formats, multiple-choice and essay examinations, affect their approaches to learning, study strategies, motivation and achievement.

The research questions

- Do undergraduate Chinese students' perceptions of two different examination formats impact on their approaches to learning, study strategies, motivation and achievement in a western university?
- How do undergraduate Chinese students report engaging in study strategies for two different examination formats in a western university?
- How do undergraduate Chinese students' perceptions of the requirements for language use in two different examination formats affect their study strategies in a western university?
- How do undergraduate Chinese students report using memorisation and understanding as strategies for two different examination formats in a western university?

An explanatory mixed methods design was used, collecting the quantitative data first and then, using the qualitative data to explain the quantitative data in more depth. The first question was addressed using the quantitative methods, the second using both quantitative and qualitative methods and the last two questions were considered in the qualitative study. In the first quantitative phase of the study, two questionnaires were incorporated into a survey to gather data from Chinese undergraduate students in a New Zealand university to investigate how different formats of examination questions, multiple-choice and essay, impact on approaches to learning, motivation, study strategies and achievement. The qualitative phase provides evidence to explain how the processes of memorisation and understanding contribute to deep and surface learning when studying for multiple-choice and essay examinations for Chinese students.

The data from both methods are integrated in the discussion and both data sets contribute to a possible model using a constructivist lens and drawing on the concepts of identity and agency (Lantolf, 2001; Vygotsky, 1978), together with legitimate peripheral participation in a community of practice (Lave & Wenger, 1991). This theoretical perspective allows for the study of “what people at a particular time and place take as real, how they construct their views and actions, when different constructions arise” (Bryant & Chamaz, 2007a, p. 610). There are tensions created by researching groups of learners by their cultural background and, at the same time, considering them as individuals, each with human agency that allows them to “actively engage in constructing the terms and conditions of their own learning” (Lantolf, 2001, p. 145). These tensions are particularly apparent in a mixed methods study because quantitative data considers groups rather than individuals.

The applications and expected outcomes of this research

Previous research has investigated some of the cultural influences on Chinese learners in terms of their motivation, approaches to learning (Leung, Ginns, & Kember, 2008) and use of memorisation and understanding (Au & Entwistle, 1999; Marton, Dall’Alba & Tse, 1996; Sachs & Chan, 2003). Alongside this research are reports of Asian students having high achievement outcomes which may seem paradoxical in terms of how the identity of the Chinese learner has been constructed by western academics as passive, rote learners (Ballard & Clanchy, 1984; Samuelowicz, 1987). These identities are labelled as the “paradox of the Chinese learner” (Saravanamuthu & Tinker, 2008, p. 132). This apparent paradox develops because Chinese students appear to use rote memorisation and yet can attain high levels of achievement. However, the nature of memorisation for Chinese learners has been further theorised and may be seen as more complex than thought initially (Cooper, 2004; Sachs & Chan, 2003).

When Chinese students come to study in New Zealand, they bring study strategies, motivation and approaches to learning that have been developed in their home countries (Volet, 1999). Their cultural identity is tempered in a complex, personal adjustment process (Gu & Schweisfurth, 2006; Holmes, 2004; Lee, 2007; Turner, 2006). Views of the new teaching and learning environment of a western university may interact with cultural attributes (Rizvi, 2000). Perceptions of types of assessment are part of these views of the new educational environment. Educators want to engage all their students, including Chinese students, in a deep approach to learning (Biggs, 2003). Hence, course design would benefit from knowledge about the impact of Chinese students’ perceptions of different formats of examinations on their motivation to learn, study strategies, academic engagement and achievement outcomes.

Definitions of terms

A brief definition of terms is provided in Table 1. The foundations for these definitions arise from the literature that is reviewed in Chapter 2.

Table 1: Definition of terms

Term	Definition
Approaches to learning	The way students go about learning. This may be a surface approach which is focused on memorising. Alternatively a deep approach is focused on understanding. Each approach has an associated motive and a strategy.
Surface approach	“The student reduces what is to be learned to a set of unconnected facts to be memorised. The intention is to reproduce these facts at a later date.” (Ramburuth & Mladenovic, 2004, p. 511)
Deep approach	“The student seeks to make sense of what is being learned. The intention is to understand and to work with concepts and ideas. The learning requires thinking and integration between tasks.” (Ramburuth & Mladenovic, 2004, p. 511)
Chinese students	Ethnically Chinese students who have been educated in Hong Kong, Taiwan or mainland China and are fluent speakers of their regional version of Chinese.
Study strategies	Purposeful activities used to achieve academic goals. These activities can be described by those using them.
Motivation	The purpose for engaging in academic study. Deep motives are based on intrinsic interest in an academic task while surface motives are focused on a fear of failure (Biggs et al., 2001).
English as an additional language (EAL) students	Students who have a home language other than English and may have varying degrees of proficiency in English
Examination format	The two kinds of examination formats considered in this study are examinations that are mostly made up of multiple-choice questions and examinations that are mostly made up of essay questions. Essay questions would require extended text with at least half an hour needed to answer them.

Chapter Summary

The objectives of this study have been described within the context of a contribution to research on the internationalisation of education and the significance of Chinese students studying in New Zealand universities. The research questions have been stated with the expected applications and outcomes. Common terms have been defined as they are used in this study.

Overview of thesis chapters

Chapter One is an introduction which outlines the purpose of the research and its significance for Chinese students studying within a western university. The need for this research is brought about by the internationalisation of education, a process that has created a diverse student body in tertiary education in New Zealand. The research questions are posed and the main terms are defined.

Chapter Two reviews the literature. The origins, applications and variations of the student approach to learning theory (SAL) are traced. A selective overview of research of the assessment and student learning is given, followed by a more in-depth focus on essay and multiple-choice questions. Strategies for learning for EAL students are considered. Finally, literature that both confirms and contests the paradox of the Chinese learner is presented and discussed. The conceptual framework for the study is made explicit by means of a diagram.

Chapter Three details the methods used. The research approach in this mixed methods study is based on pragmatism but the methods used are underpinned by a constructivist view. Since this view acknowledges multiple realities that are constructed by the participants and the researcher, I examine my own position and that of my cultural advisors within this study. I argue why a mixed methods approach is appropriate to address the research and I describe the instruments used in the quantitative method and the process of grounded theory used as a qualitative method. This description includes the process of integrating the methods at each stage and the synergies and tensions that are created. Reliability and validity are considered from the perspective of a mixed methods study. Finally, ethical issues are addressed.

Chapter Four presents the findings from the three data sets. The qualitative data from the survey were coded. The quantitative data were used to examine hypotheses for multiple-choice and essay examinations. These were based on approaches to learning, motives, strategies and self-reports of achievement. Students' preferences for either examination format were used to consider goal orientation. The categories that arose from the qualitative evidence in the interviews are described and the findings from each data set are summarised.

Chapter Five integrates the three data sets using the categories developed in the qualitative study as a framework. The data from each source are considered as a whole. The relationship among the categories is illustrated in a diagram. A central

category, *Memorising, practising and understanding*, is identified and subcategories are developed and illustrated.

Chapter Six examines how memorisation and understanding are reported being used by Chinese students as they prepare for both formats of examinations. It draws on the phenomenographical research related to memorisation and understanding (Marton et al., 1996; Marton, Watkins & Tang, 1997; Marton, Wen, & Wong, 2005; Wong & Wen, 2001), including the concept of variation (Marton et al., 2005), to offer an explanation of how the two different formats of examination may affect Chinese students' processes of revision.

Chapter Seven proposes a model to explain how Chinese undergraduate students report the effect of two different examination formats on their motivation, approaches to study, study strategies and deep and surface learning. In this model I propose that it is the students' perceptions of the multiple-choice and essay examinations that affect their study strategies. Motivation and approaches to learning are not affected by the examination format. Discipline-specific language skills are part of the process of forming the student perceptions and contribute to study strategies.

Chapter Eight considers the limitations of the instruments used and the design of the study. Implications for the teaching and learning of Chinese students in undergraduate courses are considered and areas for further research which expand and build upon the findings of this study are suggested.

Chapter Two

Literature Review

Introduction

In this chapter, I describe the origins of the student approaches to learning theory with its subsequent directions, and explore the relationships between types of assessment and approaches to learning in higher education. This includes how the format of assessment affects students' learning and research that links study strategies and achievement for EAL learners. I focus on the identity of the Chinese learner from the perspectives of teachers and researchers, and argue that the advantages of identifying this group of learners counterbalance the dangers of stereotyping. This identity has been constructed in different contexts by researchers and can be used to examine issues pertaining to motivation, memorisation and understanding, and adjustment to learning in a western cultural context for Chinese students.

A conceptual framework for this study is developed from the literature. A brief description of how different parts of the literature are brought into the foreground during different stages of the study and a chapter summary conclude this section.

Student approaches to learning theory

SAL theory has been described as "a meta-theory for conceptualising learning and teaching" (Biggs, Kember, & Leung, 2001, p. 134). The idea of different types of approaches to learning originated in the SAL research (Marton & Säljö, 1976a, 1976b). Students told to read a text, and then answer questions about that text, responded in two different ways. The first was described as a surface approach, focusing on remembering the details that might be asked rather than the underlying meaning of the text. The second way was described as a deep approach, or reading to grasp the author's underlying meaning. These students tried to understand the text and the larger ideas that the author was trying to convey.

Each approach to learning was characterised by motives and study strategies. A surface approach to learning was seen as resulting from a desire to do no more work than was needed to pass. In this approach, students targeted only the essentials of a course and used rote memorisation to remember facts and details rather than understanding important concepts. In contrast, a deep approach was associated with an intrinsic interest in what was being learned and came from a

desire to develop competence in the subject that was being studied, motivated by mastery goals. The deep approach to learning was aimed at developing complex interrelationships with previous knowledge which involved reading widely and seeking understanding (Biggs, 2003; Kember, Biggs & Leung, 2004).

Different schools of research have evolved from the origins of this research. One used a phenomenographical approach, where the focus was on how students represented knowledge (Marton, Dall'Alba, & Beaty, 1993; Marton et al., 1996; Marton et al., 2005), and the other was based on a constructivist approach to learning and teaching, where the focus was on what a learner has to do to create knowledge (Biggs, 2003).

Conceptions of learning

The phenomenographical approach draws on the analysis of data from interviews with students on the ways they go about learning. From these data, categories are developed. Six conceptions of learning for western students have been identified (Marton et al., 1993). These are:

1. increasing one's knowledge
2. memorising and reproducing
3. applying or using what one has learned
4. understanding
5. seeing something in a different way
6. changing as a person.

These conceptions develop through particular experiences and the earlier ones are replaced by the later ones. Numbers 1-3 represent memorisation and 4-6 represent understanding. Marton et al. (1997) elaborated on this theory by introducing dimensions in learning, identifying "acquiring", "knowing" and "making use of" (p. 41) based on interviews with secondary school students in Hong Kong. Conceptions of learning within the framework of student approaches to learning provided a significant contribution to understanding how students approached the process of learning for examinations especially in the interplay between the processes of memorisation and understanding (Au & Entwistle, 1999; Entwistle & Entwistle, 1991; Entwistle & Entwistle, 2003). Memorising is an indication of a surface approach while understanding indicates a deep approach to learning (Entwistle & Peterson, 2004).

A phenomenographical approach to conceptions of learning also informed knowledge in the area of cultural differences for students in their approaches to learning (Dahlin & Watkins, 2000; Marton et al., 1997; Marton et al., 2005). These investigations primarily focused on the differences in conceptions of learning between Asian students and western students, highlighting the area of memorisation and understanding for Asian students (Sachs & Chan, 2003; Wong & Wen, 2001). Marton and colleagues (2005) found that Chinese university students regard memorisation and understanding as occurring at the same time (Marton et al., 2005). The development and use of the Conceptions of Learning Inventory (COLI) enabled wider use of cross-cultural comparisons (Pillay, Purdie, & Boulton-Lewis, 2000; Purdie & Hattie, 2002) and introduced concepts such as “Learning as a duty” (Pillay et al., 2000, p. 65).

The creation and validation of a quantitative instrument such as COLI enabled larger scale comparisons of conceptions of learning and suggested that there is a distinction between mechanical memorisation and memorisation to develop meaning (Purdie & Hattie, 2002). Variations in students’ conceptions of learning were explored using the Reflections on Learning Inventory (RoLI) to differentiate memorising as a step towards understanding, and memorisation of understanding (Meyer, 2000; Meyer & Shanahan, 2003).

Approaches to learning

Students’ approaches to learning were also studied using a systems approach (Biggs, 1987; Biggs et al., 2001). Biggs (1987) developed a 42 item *Study Processes Questionnaire* (SPQ) that enabled comparisons of students’ approaches to learning. The questionnaire was a self-report of study strategies and motives using Likert scales. Each approach to learning included a strategy and a motive. As well as a deep and a surface approach to learning, a third approach to learning, the achieving approach, was included. Students with the achieving approach wanted to gain high grades in examinations and to enhance ego and self-esteem through competition. Study strategies for this approach were organising time, following up on readings, and adjusting strategies to bring success in examinations. Versions of the SPQ have been used to examine how students learn in different cultural contexts (Brown & Joughin, 2007; Leung et al., 2008), to examine how students from different cultures learn in the same educational context (Donald & Jackling, 2007; Ramburuth & McCormick, 2001), and how different types of assessment affect students (Scouller, 1998; Tang & Biggs, 1996; Tian, 2007).

The student approaches to learning model is based on Biggs (2003) which integrates the teaching and learning context with what the student does. His 3P model of learning and teaching can be used to show the interaction of deep and surface approaches to learning with learning and teaching. This model has particular relevance because it incorporates the learning and teaching context as part of the approaches to learning.

The model has three parts. *Presage* describes what happens before learning takes place. There are two kinds of factors at this phase. The first kind encompasses the student-based factors such as prior knowledge, motivation, interest and ability. The second kind includes the teaching context-based factors such as the course objectives, the method of teaching, assessment and institutional procedures. These two sets of factors interact in a reciprocal way with each other. They also interact with the set of factors in the next phase.

The next phase is called *Process*. In this phase, the approaches are determined. These may be deep or surface approaches to learning. At this phase, the institutional and the learner factors are interacting to produce learning focused activities. This may include how a learner engages in a particular task such as examinations.

The final phase is the *Product*. Here learning outcomes are determined. These may be quantitative, qualitative or affective. While the flow works from *Presage*, *Process* to *Product*, it is important to note that this is an interactive system and all parts affect each other for any particular learner in any specific context. Student approaches to learning are determined by the teaching context and the individual learner (Biggs et al., 2001). Surface and deep approaches to learning were not dichotomous but were likely to be multidimensional especially with Asian students (Purdie & Hattie, 2002; Sachs & Chan, 2003). The inclusion of social factors that may shape the learning behaviours and motives of Chinese learners increases the complexity of the model and increases the need for more context dependent research (Saravanamuthu, 2008).

Assessment

Assessment and student learning

Assessment practices in tertiary education can be seen as systems of communication that have feed-out functions. Summative assessment may warrant achievement in terms of awarding degrees. Degrees have currency and utility in determining employability and life choices for their holders (Knight, 2002). Another function of assessment practices is encouraging behaviours associated with good

learning including formative assessment in feeding back information to the learner that he/she is going to apply in the future (Biggs, 1998a; Black & William, 1998; Gibbs & Simpson, 2004; Gipps, 2002; Hattie & Timperley, 2007).

Ecclestone and Prior (2003, p. 474) introduce the term “assessment career” as part of the concept of a learning career (Crossan, Field, Gallacher, & Merrill, 2003). This metaphor captures ideas from Lave and Wenger (1991) in that learning is both socially constructed and context dependent. As learners are exposed to new situations, the context-specific factors will change and shape their identity as learners and contribute to their assessment careers. Assessment careers contribute to the way learners see themselves in terms of their learner identities (Reay & William, 1999).

Cultural capital (Bourdieu, 1997) refers to the behaviours, values and practices that are part of the dominant society. Assessment regimes may be part of the cultural capital of an institution or society and learners (Ecclestone & Prior, 2003). These authors suggest that the concept of assessment careers, together with cultural capital, may be useful in examining how assessment plays out in the lives of different groups of students as their identity as learners is constructed. Havnes’ (2004) activity-theoretical approach was used to widen investigation of the effects of assessment to show that the final examination in a course for undergraduates has an effect on student learning, teaching, textbooks and other learning material.

Types of assessment and approaches to learning

Different types of assessment have been shown to influence student learning in higher education (Biggs, 1987, Gibbs & Simpson, 2004; Havnes, 2004; Scouller, 1998, Smith & Miller, 2005; Tian, 2007). The focus of studies has been a comparison of formal examinations and essay assignments (Scouller, 1998; Tian, 2007). Essay assignments advantaged British students with deep approaches to learning and disadvantaged those with surface approaches to learning (Tian, 2007). For formal examinations, Tian found that deep approaches were negatively correlated with achievement outcomes in formal examinations, but surface approaches were not positively correlated with achievement outcomes. However, no information about the types of questions in the formal examination was provided. This contrasts with Scouller’s (1998) research, where a multiple-choice examination was compared to an assignment as a summative assessment. Her results show that students were significantly more likely to engage in a surface approach with a surface motivation and surface strategies when preparing for a multiple-choice

examination, in comparison to preparing an assignment essay. In the case of Chinese students studying in western universities and being examined in English, the application of findings from studies which compared essay assignments to examinations would need to be treated with caution. The assessment conditions are very different for an essay assignment compared to an examination as students can access support and have much time to engage in the assessment (Gibbs & Simpson, 2004).

Students build on their prior experience with assessment. Chinese students' educational backgrounds equipped them with good test-taking strategies, but they may have been trained at school to respond at the word level and have less knowledge of the specific characteristics of a good essay assignment (Tang & Biggs, 1996). Tang and Biggs asserted that the higher achieving students had surface strategies but they also had deep dispositions that predisposed them to deep learning. Students will use the strategies that they regard as required by the assessment task, if they have the specific strategies.

While there have been a number of studies considering the effect of essay assignments compared with examinations or tests, Smith and Miller (2005) examined the effect of the format of examinations using approaches to learning with the SPQ (Biggs, 1987). No significant differences in the use of surface or deep strategies were found for a hypothetical multiple-choice or essay examination with a large sample of 248 Australian university students. A possibility suggested by the authors is that students may have held a superficial understanding of what was required in an essay. Alternatively, the examination situation with its time constraints and pressure may have caused students to moderate their deep approach to learning (Thomson & Falchikov, 1998). Either of these possibilities could be very relevant for students who were studying in their second language and in an unfamiliar culture. Therefore, it is useful to consider the literature on these two question types in examinations in more detail.

Multiple-choice examination questions

Multiple-choice questions in examinations are a subset of structured selection type formats (Zeidner, 1987). They are a form of closed-ended assessments containing a stem statement and three or more answer options (Bleske-Rechek, Zeug & Webb, 2007; Burton, 2005). Multiple-choice questions are used internationally and in a variety of disciplines in higher education (Burton, 2005; Paxton, 2000; Williams, 2006). They have advantages in that they can be quickly and easily scored for

courses with large numbers of students and a wide range of material can be covered (Becker & Johnston, 1999; Bleske-Rechek et al., 2007; Williams & Clarke, 2004). Quantitative evidence supports the use of multiple-choice items as a means of testing students' achievement in comparison to short answer tests. Bleske-Rechek et al. (2007) found that students' performance in multiple-choice tests accounted for variations in students' achievement measures beyond their performance in short answer tests. These achievement measures were from outside the course and included American College Test scores and college grade point averages. In some disciplines, multiple-choice questions have been found to disadvantage a particular group as in the case of Bridgeman and Lewis (1994) who found that multiple-choice testing may disadvantage women studying history. Therefore, it is important to consider multiple-choice questions in relation to specific groups of students such as Chinese learners.

The construction of multiple-choice questions is highly relevant when considering their effects on Chinese students who are being examined in English. Burton (2005) presented and commented on the literature relating to some common myths about multiple-choice questions. The strategy of guessing can have an effect on the scores of students who are close to a pass mark which pushes them over the threshold required to pass. Students are more likely to be able to guess correctly if the questions are badly constructed, for example, contain grammatical clues. Students who are averse to taking risks will not guess and therefore may penalise themselves in multiple-choice where marks are not deducted for wrong answers. A distinction needs to be made between blind guessing and guessing with partial knowledge. More sophisticated systems of multiple-choice questions – such as assertive-reason multiple-choice testing – that purport to encourage higher level thinking may actually have more to do with the examinee's proficiency in English (Williams, 2006).

In an exploratory analysis of economics examinations in South Africa based on multiple-choice questions, Paxton (2000) characterised multiple-choice responding strategies for students as “becoming good rote learners, absorbing the details of textbooks, reading through the discriminators carefully so as to be able to eliminate wrong answers, getting access to other tests for practice and revision” (p.122). From her analysis, she argued that the use of multiple-choice questions does not allow students to develop communicative competence in a discipline that is the ability to use the language of that subject. She recommended that careful thought be given to the interaction between language and multiple-choice questions in order to be fair to

second language learners. However, this portrayal of multiple-choice questions as testing low level knowledge only is not supported by other researchers such as Simkin and Kuechler (2005), although these authors also pointed out the difficulty of constructing multiple-choice questions to examine high level thinking.

Multiple-choice assessments lower anxiety, have a higher success expectancy and give a greater feeling of ease. Zeidner (1987) found that school-aged students preferred multiple-choice assessments to essay examinations in all the dimensions tested except in showing one's subject knowledge. Multiple-choice questions have been shown to push students towards a surface approach to learning (Entwistle & Entwistle, 1991). Although Scouller and Prosser (1994) found that deep approaches were associated with achievement in multiple-choice questions, students who show a surface approach prefer teaching and assessment procedures that they perceive support that approach. This may create a preference for multiple-choice examinations (Entwistle & Tait, 1995; Struyven, Dochy & Jansens, 2005). Fellenz (2004) indicates that multiple-choice questions may allow students to show their knowledge in a subject despite differences in writing ability. This may be a significant factor in the preferences and perceptions of EAL students of this question format.

Essay examination questions

Essays in this study are continuous pieces of prose written in response to a question or problem (Biggs 2003). These are written to show understanding and thinking about course work under timed conditions with restricted access to resources in the examination (Brown, 2009). Students may have varying degrees of access to the questions or general topics beforehand through direct information in courses, formal opportunities to practise, hints from lecturers or reviewing old examination papers (Saravanamuthu, 2008). Essays in the examination will be hand written rather than written with a keyboard. This assumption is relevant because Chinese students are required to use an English script with different physical writing skills compared to forming Chinese characters in their first language. In writing essays in examinations, students will not have immediate access to a computer program to assist the process.

Essay questions are more likely to elicit a deep approach to learning than multiple-choice examinations (Entwistle & Entwistle, 1991; Thomas & Bain, 1984). Students who reported a deep approach to learning were more likely to want assessment procedures such as essay examinations which they perceive as allowing them to demonstrate their knowledge (Entwistle & Tait, 1995). Students who had a high

degree of confidence in their academic ability and good learning skills tended to prefer essay type examinations (Birenbaum & Feldman, 1998). Struyven et al. (2005) comment from a synthesis of literature that there is an overall tendency for students to change their approaches when studying for essay examinations and to adopt a deep approach.

Essay questions engage students in using their productive language to produce extended texts. This may be a confounding issue for students who are demonstrating their understanding through essay writing in a second language such as Chinese students whose first language is Chinese. In a qualitative study of five students from Confucian heritage cultural (CHC) backgrounds, Green's (2007) findings suggested that there was a link between perceptions of learning and perceptions of essay writing in an Australian university. When students have a knowledge of discourse structure in one situation, this knowledge can transfer to a new situation. These differences were not attributed to English language proficiency. More complex essay structures have been shown to relate to deeper approaches to learning (Elander, Harrington, Norton, Robinson, & Reddy, 2006).

Complexity of questions in examinations

If students simply classify examination questions according to their format (multiple-choice or essay questions) to determine their approaches to learning, they may have an underlying assumption that all multiple-choice questions and all essay questions are of the same degree of complexity. Student and staff perceptions of the difficulty and complexity of examination questions have a relationship with student approaches to learning (Baumgart & Halse, 1999; Davidson, 2002; Lingard, Minasian-Batmanian, Vella, Cathers & Gonzalez, 2009). Students' perceptions of the level of complexity of examination questions were a factor in inducing approaches to learning. Lingard et al. (2009) found that agreement between staff and students over the grade descriptors of multiple-choice questions in a biochemistry and physics course was 50% or less. Poor descriptor agreement was associated with lower marks for the students as they failed to recognise the level of skill development required, reducing their chances of developing those skills. In contrast, a deep approach to study as measured using the SPQ (Biggs, 1987) was related to higher performance in complex examination questions (Davidson, 2002). Students may need to recognise and predict the degree of complexity of the examination tasks for these to impact on their approaches to learning in a course.

Prior educational experience with multiple-choice and essay questions may also influence approaches to learning. Baumgart and Halse (1999) examined and compared assessments in senior secondary schools in Thailand, Japan and Australia. They found that assessment tasks in Australia that may be classified superficially as requiring a deep approach to learning (e.g., open-ended essay formats) were actually able to be answered using recall because of the predictability of the tasks. This was especially true in the case of cue-conscious students offered a wide choice of tasks. In contrast, the Thai and Japanese multiple-choice questions demanded high levels of analysis and interpretation as well as a knowledge base. Students were not given any credit for the processes – they only gained marks for the right response. This type of question was able to elicit a deep approach to learning. According to Baumgart and Halse (1999), Asian students in their home countries may have had experience with multiple-choice questions that require a deep approach to learning.

The underlying assumption that assessment requirements in western universities require the skills of critical analysis was scrutinised by Kirkpatrick and Mulligan (2002). They evaluated the quantity and type of reading that students studying engineering, social science, business and health sciences were required to undertake. For disciplines other than social science, the authors concluded that teaching was of a transmission model with assessments commonly based on a reproductive learning style. It was not because the students were unwilling or unable to engage in deep approaches, but rather, because their courses, including the assessments, did not demand it of them. Students who have been educated in Asia may have experienced degrees of complexity of assessment tasks within both multiple-choice and essay formats.

These studies reveal that the perceptions of complexity of questions used in assessments may be an underlying layer that needs to be considered when looking at evidence of the link between the format of examination questions such as multiple-choice and essay types and approaches to learning.

The use of study strategies for EAL learners

Study strategies and achievement.

In a meta-analysis of the relationship between study skills and learning outcomes, Purdie and Hattie, (2002) concluded that versatility of study skills is important in achieving learning outcomes. The effectiveness of having a range of skills to draw on assumes that students recognise when to use a skill that promotes deep learning

and when to use a skill for surface learning. Having a range of study skills was particularly important in the studies with cross-cultural settings. The importance of context is brought out in Hattie and Purdie's (1996) study comparing Japanese learners with Australian high school learners in the students' use of strategies for self-regulated learning. Of particular interest is the greater use of memorisation by the Japanese students and a recommendation for educators to reconsider the place of memorisation in learning.

Strategy use and learning language

Chinese students in this study are learning and being assessed in English, which is their second or third language. Language learning strategies, especially those related to reading and writing, are germane to doing both multiple-choice and essay examinations in English. Context and culture will influence language learning strategy use. Other factors include students' first language and the values that society places on competition versus collaboration (Chamot, 2004; Wharton, 2000). More proficient language learners use a greater variety and number of language learning strategies (Chamot & Beard El-Dinary, 1999; Green & Oxford, 1995; Lai, 2009). Chamot (2004) also concludes that students select different strategies depending on the purposes of studying. Success in examinations in a western academic university may require different sets of strategies compared with learning English in a country like mainland China. When English is learned in a foreign language environment such as China, learning strategies may be influenced by the curriculum and the assessment practices (Jiang & Smith, 2009).

Language learning strategies are related to identity and the social situation as explained by Parks and Raymond (2004) and Spack (1997). Both of these studies showed the complexity of the nature of learning strategies for Asian international students studying in a western university. There has been considerable controversy surrounding language learning strategies, how they are to be classified and even whether they actually exist at all. Various classifications of language learning strategies have been created (Chamot, Barnhardt, El-Dinary & Robbins, 1999; Cohen, 1998; O'Malley & Chamot, 1990; Oxford, 1990). One of these is the basis of the widely used Strategy Inventory for Language Learning (SILL) (Oxford, 1990). When examining strategy use with a modified use of SILL in Chinese universities, Qingquan, Chatupote and Teo (2009) found that unsuccessful language learners in this situation used surface strategies such as out-of-context vocabulary strategies while the successful learners used more strategies that helped them relate learning to previous knowledge.

There has been discussion about the definition and nature of learning strategies (Chamot, 2004; Dornyei, 2005; Swan, 2008). Chamot (2004) makes the point that strategy inventories have generally been developed for research purposes and that the relationships among strategies including their size and degree of abstraction has not been established. Dornyei (2005) challenges researchers to explain the difference between a learning strategy and a learning activity. This is relevant when academic achievement requires learning a language within a discipline.

Study strategies for learning within a discipline

Strategies are goal driven and purposeful (Chamot, 2004). They are used consciously and learners can describe their use. All students need to use the language of a specialist discipline in order to learn disciplinary knowledge. This is more than simply learning to use the technical vocabulary. It requires knowledge of the discourse to support a level of abstraction and an understanding of grammatical metaphor in writing. For example discipline-specific language enables students to move from the specific to the general in their writing (Woodward-Kron, 2008). For second language learners immersed in an English language university environment, grammatical accuracy and complexity may not improve in the short term without specific interventions (Storch, 2009). This may be due to the focus on content in teaching (Storch & Tapper, 2000) and a lack of feedback comments on writing (Leki & Carson, 1997).

Johnson and Ngor (1996) explain that Chinese students may use lexical processing, a top-down approach to reading to learn when the task does not match their level of language proficiency or content knowledge. Lexical processing relies more on top-down strategies such as background knowledge, knowledge of texts, and language in general rather than on decoding strategies that arise from a knowledge of the grammar and the specialist knowledge of language. Students may surmise the meaning of a text using their own background knowledge about the text rather than working out the meaning of the text from the words and sentences. This may prevent the reader from arriving at a precise meaning of a text and can encourage incomplete inferences. Saravanamuthu (2008) points out that this can then lead to memorisation as a strategy as the students have an incomplete understanding of the text. This is supported by evidence from Meyer and Shanahan (2003) who found that students who did not have English as their first language reported a higher frequency of memorisation and repetition as strategies.

EAL students at university level need multiple opportunities to engage in writing within a discipline in order to learn actively, including opportunities to rehearse and get feedback on unfamiliar tasks (Zamel & Spack, 2006). For Chinese students, this can provide the variation that Marton and colleagues (2005) see as part of the essential space of learning.

The Chinese learner

Who is the Chinese learner?

This section will consider how the identity of Chinese learners is constructed in literature. While this identity is not static or necessarily well defined, it is useful for educators if it is empirically based rather than based on stereotypes. In this study, Chinese students are identified not just by their ethnicity, place of birth and language, but also by their participation in cultural communities. Cultural communities are defined as “a coordinated group of people with some traditions and understandings in common, extending over several generations, with varied roles and practices and continual change among participants as well as transformation in the community’s practices” (Gutierrez & Rogoff, 2003, p. 21) which implies a focus on dynamic processes and identities rather than static individual traits (Doherty & Singh, 2005).

Western academics’ construction of the identity of Chinese learners

Stereotypes of Chinese learners in the '80s saw these students as rote learners, excessively respectful of the teacher, quiet in class and overly concerned with assessment (Ballard & Clanchy, 1984; Samuelowicz, 1987). Indeed, they were seen as unable to engage in the critical thinking required by western institutions until they let go of their former learning styles. These learners were seen to rely on rote learning that characterised a surface approach to learning. Saravananmuthu and Tinker (2008) argue that these stereotypes continue in western universities.

Perceptions of lecturers in five tertiary institutions in Hong Kong showed similar views (Jackson, 2005). Lecturers thought that students did not actively participate in class, had weak problem solving skills, and a surface approach to learning. They complained that students memorised textbooks in preparation for assessments. As a result of these perceived attributes, they felt forced to use less demanding forms of assessment that required fewer analytical skills. Devos (2003), in analysing the discourse around international students, concludes that a debate of academic standards casts Australian academics as the victim and that international students are constructed as ‘other’.

In (1999) Volet's study, the characteristics attributed to learners from CHC backgrounds are examined for congruence with what is believed to be appropriate in a western university setting. High achievement motivation, attribution of success to effort rather than ability, deep approaches to learning, and informal study groups are seen as appropriate for studying in Australian universities. Cue-seeking to identify assessment demands and memorisation of study materials were seen as aspects of study where there may not have been a general consensus about whether transfer was appropriate. CHC students' perceptions of the role of teachers did not transfer well. Asian students expect teachers to provide help outside class, rather than spend time answering questions during classes. Strategies seen as unacceptable in Australian universities that would have been acceptable in their home country were labelled as inappropriate transfer. These were reporting verbatim and copying relevant extracts in assignments without acknowledgment. Volet (1999) pointed out that those characteristics that appeared to transfer well were related to students' belief systems about learning. The aspects of learning that did not transfer so well are related to how the students responded to the learning environment either in their home or host country. An example was rote memorisation which may have been necessitated by the workload created by large amounts of assessment or a strategy to enable students to overcome the difficulties of learning in a second language.

While it is important to be aware that this labelling of Chinese students is a way in which "we put ourselves in the powerful position of rhetorically constructing their identities, a potentially hazardous enterprise" (Spack, 1997, p.765), educators and researchers should also recognise international students as a "new diaspora" (Rizvi, 2000 p. 223) who with their subsequent intercultural identity will have considerable global influence. Doherty and Singh (2005) used the discourse of cultural identity to contest the images of Asian students as "others" who are passive rote learners. Rather, they saw Asian international students as having fluid identities that developed as they made "biographical investments for liquid times" (p.1). Morris (2005) challenged educators not to marginalise these students through their differences but to recognise and make use of this process of the dynamic creation of identity within learning. To make use of this identity for the purposes of improving learning and teaching in higher education, it is necessary to analyse critically the literature that has led to its construction including the controversy that it has created. Further study enables this knowledge of the Chinese learner to be progressed and updated in light of a new era.

Fluid identities

There is a body of research that engages with the fluid nature of cultural identity which intersects with the literature on Asian students. Issues surrounding the way the Chinese learner has been constructed were considered by Clarke and Gieve (2006). These included the limitations of this term, as it can often be derived from a geographic region which, in itself, is very diverse. Chinese cultures themselves are diverse. Even within mainland China there are 55 national minority peoples. By labelling Chinese students, the literature could paint this concept of the Chinese learner as homogeneous and static.

In reality, the concept of the Chinese learner is not static. Not only has the educational context within China changed, but so too has the kind of student going abroad to study (Jin & Cortazzi, 2006). Mainland China is now offering many more places to students who wish to go to university within their home country (Bai, 2006). Previously, western universities were ranked above Chinese institutions (Chan, 1999), but now some Chinese universities are ranked highly. Because of the increased number of places available in Chinese universities, top students are now choosing highly ranked Chinese universities over lower ranked overseas universities. Twenty years ago, Chinese students were likely to be funded by their government to study abroad. Now, students who do go abroad to study are likely to be funded by their family. In addition, these students are likely to have experienced different educational practices such as reforms in the way of teaching English in China before they depart for overseas countries (Jin & Cortazzi, 2006). Shi (2006) described the social context of learning in China as a “moving target” (p. 139) because of the changes that are continuously being implemented.

The environment that Chinese learners come to in western universities has also changed. For example, since the late 1990s, the numbers of Chinese students in New Zealand has grown (Bai, 2008). The type and duration of Chinese students' experiences abroad have also changed because of New Zealand government regulations which have allowed students to come to New Zealand at an earlier age. In 1999, Chinese international students were able to enrol in New Zealand secondary schools. These students have spent more time studying in New Zealand than students who entered university directly from their home countries. Universities have developed policies for internationalisation, and a body of research on Chinese learners in western education and specific to New Zealand education has been generated (Ho, Li, Cooper & Holmes, 2007). The availability of this research has the potential to influence Chinese students' experiences at an institutional level and a classroom level.

Cultural influences on Chinese students

The term “Chinese students” has been used specifically and is a subset of a bigger group of “Asian learners” (Wong, 2004). There are two common frameworks that are used to characterise Asian students. One situates them as coming from collectivist cultures (Hofstede, 1986; Ho, Holmes, & Cooper, 2004). Using this framework, Chinese learners from a collectivist culture would be likely to view education as a way of gaining higher social status by valuing qualifications. They would uphold tradition, seek harmony and endeavour to preserve face, including not speaking in class unless called upon. (Ho et al., 2004). The other framework characterises students as belonging to CHCs (Chan, 1999; Lee, 1996). In this tradition, learners are expected to work hard, show respect to teachers, revere knowledge, and strive to become good people. These two influences on Chinese students are interconnected and overlapping.

Memorisation and understanding

Models of memorisation and understanding for Chinese learners are based on the conceptions of learning research. This phenomenographical approach identifies six conceptions that western learners hold (Marton et al., 1993). These conceptions develop through particular experiences and the lower ones are replaced by the higher ones. The first three represent memorising and the last three represent understanding, as stated in the section in this chapter on conceptions of learning.

Marton et al. (1996) argued that memorisation and understanding are not a dichotomy for Chinese students. In their qualitative study of 20 mainland Chinese teacher educators, they identified different forms of memorisation, distinguishing between mechanical memorisation and memorisation with understanding. They further differentiated memorisation with understanding into two new parts, memorising what has been understood and understanding through memorisation. These authors argued that forms of repetition, while appearing to be rote learning, could actually deepen understanding for Chinese learners by focusing on different aspects of the knowledge.

Sachs and Chan (2003) followed up on this quantitatively and qualitatively. Their quantitative findings, using ranking of conceptions of learning with dual scaling analysis, indicated that Chinese learners see memorisation as distinct from understanding, but the interviews that followed revealed that memorisation was integral to understanding. They argued that the connections between memorisation and understanding may develop in specific contexts such as in response to

assessment. They recommended further research into memorisation with understanding and understanding to promote memorisation.

Au and Entwistle (1999) considered the effect of assessment on conceptions of learning. They compared the combinations of memorisation and understanding that were used by secondary school students in Hong Kong with Scottish university students. The university students' responses were gathered in a previous study (Entwistle & Entwistle, 1991). Both groups reported on their approach to studying for examinations. The approach that was adopted depended on the demands of assessment. However, memorisation as a study approach seemed to be more closely connected with understanding for the Chinese group. These authors concluded that "The Chinese approach to studying seems to make memorisation an accepted part of understanding, rooted in the Confucian heritage" (Au & Entwistle, 1999, p. 11). While the participants in Entwistle and Entwistle's (2003) study were not Chinese, the findings of this study placed memorisation and understanding within a sequence of processes that take place when students are preparing for examinations. Even though the researchers showed that the western participants used a process of "committing to memory" (Entwistle & Entwistle, 2003, p. 30) similar to Asian students' deep memorisation, the researchers acknowledged cultural variations.

These studies drew on the conceptions of the learning model that relate to surface and deep approaches to learning. They identified a need for further research into how memorisation and understanding play out for Chinese learners in specific contexts such as the preparation for different types of assessments.

Cultural influences on motivation

Before considering motivation for CHC learners, it is necessary to briefly review some of the relevant literature from the area of motivation that forms the foundation for research on the motivation of CHC learners. Three fields of research on motivation potentially contribute to this study. They are motivation in language learning (Dornyei, 2001; Gardner & Lambert, 1972), deep and surface motives (Biggs, 2003; Biggs et al., 2001; Leung et al., 2008) and achievement goals (Ames, 1992; Elliot & Harachiewicz, 1996; Grant & Dweck, 2003; Harachiewicz, Barron, Tauer & Elliot, 2002; Shim, Ryan & Anderson, 2008).

While theories of language learning motivation have relevance in that the participants are using English as an additional language to learn and live, the main

theories of motivation in this study are deep and surface motives and the theory of achievement goals. In this study, assessment relates to learning through the medium of English language at university. The primary purpose of assessment in a university setting is not just to demonstrate language learning alone, but rather to demonstrate skills, knowledge and understanding of university courses using language as a medium.

Deep and surface motives are part of the student approaches to learning theory (Biggs, 1987, 1993; Biggs et al., 2001; Leung et al., 2008). Deep motives are based on intrinsic interest while surface motives are focused on a fear of failure (Biggs et al., 2001). Some forms of extrinsic motivation such as career motivation can contribute to both deep and surface motives, particularly for Chinese students (Kember, Wong & Leung, 1999).

Achievement goal theory distinguishes two kinds of goal orientations towards academic competence. These are mastery goals which focus on developing academic competence and performance goals which focus on demonstrating academic competence in comparison to others. There has been some discussion about how these goals have been operationalised (Grant & Dweck, 2003). In this study, PALS (Midgley et al., 2000) is used as an instrument. Therefore, mastery goals are assessed by asking students the importance of learning new skills or knowledge. These goals were found to be adaptive, with students having higher intrinsic motivation and engaging in deeper learning strategies (Ames, 1992; Dweck & Leggett, 1988; Kaplan & Midgley, 1997). On the other hand, performance goals reflect “an emphasis on self-improvement, self-enhancement and self protection” (Kumar & Maehr, 2007, p.48). Performance goals are of two kinds: performance approach goals and performance avoidance goals. Performance approach goals focus on looking smart in front of others and can be positively linked to achievement especially at university where normative grading may be used (Harackiewicz et al., 2002). Performance avoidance goals focus on not appearing incompetent in front of others and are negatively linked to achievement (Midgley et al., 2000). While researchers have suggested that personality or dispositional factors contribute to individual differences in goal orientation (Dweck & Leggett, 1988), achievement goals also vary according to the learning environment. The degree to which they predict achievement may also change according to the situation (Harackiewicz et al., 2002; Shim et al., 2008). Hence, it is relevant to consider the situation of the Chinese learners, both in their home countries and when they move abroad.

Chinese culture is said to be a collectivist culture with a focus on interdependence (Hofstede, 1986). In this culture, significant others are not so much seen as a way of comparing one's self and one's own achievements but as part of a context to which a person is intimately connected (Kumar & Maehr, 2007). Salili (1996), in her review of the literature, found that Chinese students had a collectivist approach to motivation. Family pride played a part in motivating Chinese students. However, not all research corroborates the concept of interdependence for Chinese learners. More recently, Shi (2006) gathered information from 400 middle school students in China and found that the new generation of students are more concerned about self rather than family as a motivation for learning English. This may signal indications of a shift in values in the current generation of learners who are the second generation of one child families in mainland China. In contrast Li (2006) attributes findings of higher individual than social goals among mainland Chinese adolescents in China to the virtues of Confucianism which emphasise the development of moral self-perfection as an individual path. In her study, the findings showed that Chinese students were more aware of mastery than performance goals and expressed more personal agency than social agency. Therefore, it is important to consider when and where studies on motivation for Chinese students were undertaken.

There are indications that personal achievement goal orientations may play out differently for Asian students than western students (Kumar & Maehr, 2007; Zusho & Njoku, 2007). Kumar and Maehr (2007) surveyed 120 students to examine the tensions of motivation and achievement between the Indian Hindu adolescents residing in the USA and their immigrant parents. They pointed out that beliefs that may be motivating and adaptive in one culture may not be so in another. A significant difference between high school students in Malaysia and Australia was found to be the conception of learning as both a duty to oneself and to significant others for the Asian participants (Pillay et al., 2000). This has application for how Chinese students who come from a collectivist culture, but who are being educated in a culture that values independence and autonomy, cope with the tensions created from their previous experience and their current context in a New Zealand university.

Much has been written on the competitive nature of Asian learners and their emphasis on examination successes (Chan, 1999; Volet, 1999; Yan & Chow, 2002). Watkins (2007), in a survey of over 500 15 to 17 year olds from three different regions of the People's Republic of China, concluded that Chinese students often saw a competitive environment as a stimulus for learning and self-improvement.

Zusho and Njoku (2007) explored the generalisability of achievement goal theory across cultures with Anglo American, Asian American and Nigerian high school students engaged in a mathematics task. As a result of correlation and factor analysis of a survey, the authors found that mastery and performance goals may not be as distinct as theory implies for students from interdependent cultures. They concluded that the reasons for adopting goals may be different for the Asian students compared to the Anglo American students. Individuals may be motivated to learn so as not to disappoint significant others such as family. "The Asian version of competition might be associated with the collective aspects of social self" (Zusho & Njoku, 2007, p. 110).

Intrinsic and extrinsic motivation relate to deep and surface motives respectively in the first version of the SPQ (Biggs, 1987). Intrinsic motivation comes from within, whereby students obtain interest and satisfaction from learning. Intrinsic motivation leads to self-motivation and taking responsibility for learning. Extrinsic motivation comes from rewards, such as certificates, good marks or avoiding failure (Harlen & Crick, 2003). Extrinsic motivation may decrease intrinsic motivation (Deci, Koestner, & Ryan, 1999). Kember (2000) provides qualitative evidence that extrinsic motivation can exist alongside intrinsic motivation, rather than being mutually exclusive. Chinese students expect their courses to be interesting and, at the same time, to provide them with a qualification for a career. High levels of extrinsic motivation do not lessen the level of interest in the course and the desire for understanding (Kember, Wong & Leung, 1999). Therefore, career goals were not considered surface motives especially for Asian students. This was incorporated in the design of the Revised Two Factor Study Processes Questionnaire (R-SPQ-2f) validated with Chinese students (Biggs et al., 2001).

Chinese students desire to see that their courses are relevant to future careers. In a more recent study based on interviews of 36 university students in Hong Kong, Kember, Ho and Hong (2008) identify relevance as an important motivating factor for Chinese students studying in courses that lead to professional careers. The data indicated that students selected courses because of career prospects despite having little knowledge of the programme or the career that they had selected. Students found theory without practical applications demotivating. It was the application of theory to practice and establishing its relevance to current issues that promoted motivation.

Since Chinese students studying in a western university environment are also learning through the medium of English and, at the same time, continuing to develop their English language proficiency, language learning motivation is relevant.

According to Chen, Warden and Chang (2005), there is a unique motivator for Chinese students studying English in Taiwan. They called this motivator "The Chinese Imperative" (p. 623). Factor analysis of a survey with 567 participants, identified that previous models of motivation for language learning (Dornyei, 2001; Gardner & Lambert, 1972) may not be appropriate for explaining the motivation of Chinese students learning English in Taiwan. This unique motivator centres on demonstrating success in examinations in order to fulfil obligations of filial piety. Chen and colleagues gave an example where examination success in an international, standardised test of English enabled a person to be raised to hero status by the national media. This led to commercial success as she wrote books and materials based on her life and learning methods. While the Chinese imperative is only proposed as a motivator specifically for students learning English in Taiwan, it has implications for the part that examination success may play in motivation for Chinese students studying in New Zealand. It is also relevant in that it reflects the early educational experience of students before they leave their home countries.

Extrinsic motivation for Chinese students studying in New Zealand may relate to what Bai (2008, p. 226) labels "the perceived gold content" of their degree. From her survey of 457 Chinese international students studying in New Zealand, she attempts to resolve the apparent anomaly that Chinese students may be more dissatisfied with their education in New Zealand than other international students and yet most likely to want to stay in New Zealand. By examining the results of her survey in light of the changes that have occurred in mainland China, she shows that the value of a New Zealand degree in China as a ticket for getting a job has fallen. This is due to the changing political and social situation in China. There are now more places available for students in Chinese universities and at the same time there is considerable graduate unemployment. The best Chinese universities are now seen as elite. At the same time students going abroad may be of lower ability than the government sponsored students of the 1980s and early 90s. Since graduates from New Zealand universities are not seen as internationally competitive, some Chinese students aspire to getting a job in New Zealand.

There is evidence that applications of personal achievement goal orientation theory, traditional theories of intrinsic and extrinsic motivation and theories of motivation for language learning, should be critically evaluated when they are applied to students from collectivist cultures. The nature of motivation may change as result of interplay between environmental and cultural influences for those Chinese students learning in western universities.

Learning in new contexts

The importance of a teaching and learning context

Biggs and Watkins (2001) describe a pedagogical flow which arises from the culture and values of a country. Not only does this include all the interdependent components of classrooms such as class size and teaching strategies, but it also extends to the features of the society. Student learning is socialised by this pedagogical flow. Therefore, it is necessary to examine the context of teaching and learning in classrooms in Hong Kong, mainland China, and Taiwan with a focus on how Chinese students experience the transition to western education systems. This includes teaching approaches, approaches to learning, motivation and achievement, and adjustment factors.

Adjustment to different educational contexts

Chinese students face considerable adjustments when undertaking tertiary education in a western university. In tertiary institutions, “the onus was on these Chinese students to reconstruct and renegotiate their primary culture learning and communication styles to accommodate another way” (Holmes, 2004, p. 301). This was also evident in an investigation of the impact of international students on host institutions in New Zealand (Ward, 2001). Turner (2006) reflected on the interactions with a group of Chinese graduate students in a British university and concluded that it was “the culturally implicit nature of UK academic conventions” (p. 27) that meant the students did not change their approaches over the course of a year of study. This lack of knowledge of academic conventions is also a challenge for Chinese tertiary students studying in New Zealand (Campbell & Li, 2008). The adjustment to a different academic environment has been described as experiencing “learning shock” (Gu & Schweisfurth, 2006, p. 82).

Language was a theme that was identified in a number of studies as a barrier to learning for Asian students in a university where English is the language of instruction (Heggins & Jackson, 2003; Holmes, 2004; Lee, 2007). Holmes (2004), in her longitudinal study of 13 Chinese students in a New Zealand university, pointed out the difficulties students had in listening to, and understanding, the language of lectures as well as the challenges of the volume and quality of academic reading and writing that was expected in university courses. Language, rather than culture, was identified as the reason why East Asian learners were reluctant to participate in university classes in the United States (Lee, 2007). Both language and participation were identified as interconnected issues in the study of Asian students in a midwestern university in the United States (Heggins & Jackson, 2003).

At the same time as they are adjusting to a new educational environment, Chinese students experience the physiological and social impact of culture shock. There is evidence that students are stressed with financial pressures, find the process of language learning more difficult than anticipated, perceive prejudice, feel lonely, and are not able to have the level of interaction with host nationals that they desired (Hoet al., 2007; Robertson, Line, Jones, & Thomas, 2000; Spencer-Oatey & Xiong, 2006; Zhang & Brunton, 2007). Low social self-efficacy for both domestic and international students contributed towards a lack of interaction between these two groups. Interaction was likely to take place in the classroom, rather than a social setting (Brown & Daly, 2005).

Highly skilled educators and administrators are needed to support international students so that they can succeed in a western university setting. Simpson and Tan (2009) used focus groups with 160 Chinese students in a tertiary institution in New Zealand to find out the most important criteria that students use to evaluate their educational experience. These were the interpersonal aspects such as administrative and academic support rather than campus environment and curriculum quality. Teaching staff need to be experienced and available to students. They are also expected to be good communicators. In her longitudinal study of two Chinese students in a New Zealand university, Skyrme (2007) raised the issue that universities have a responsibility to provide greater levels of teacher guidance during the early stages of study. When university staff are working with Chinese students, cross-cultural communication skills can be informed by knowledge of the way Chinese students perceive their study in New Zealand. Specific skills are required to teach in an intercultural setting (Teekens, 2003). The discourses that underlie the teaching processes in a western university are the accepted and often unchallenged norm. At the same time, they may not be made explicit for international students. This disadvantages these students. It also signifies the need for universities to re-examine their practices (Campbell & Li, 2008).

Dialogic versus didactic approaches to teaching

Within these frameworks, there is often an assumption that these students will have come from backgrounds with a didactic approach to teaching and that they are adjusting to a more student-centred dialogic approach to teaching. Interviews with Chinese students in both New Zealand and Australia support different expectations of teaching and different learning conceptualisations for Chinese students in western universities compared to those in the students' home countries (Li, Baker & Marshall, 2002; Wong, 2004). These included different expectations in assessment.

An example is the expectation of finding a right answer in textbooks as opposed to a more critical problem solving approach to learning (Li et al., 2002). Holmes (2004) found that Chinese students were surprised by the dialogic approach in a New Zealand university and found difficulty knowing how to participate in discussion. Chan (1999) attributed the different approaches to participation in classroom discussion to Confucian attitudes towards hierarchy which may have discouraged critical thinking. These kinds of findings have led to guidelines and advice on how to teach Chinese learners (Baker, 2002).

However, a more recent study showed that Chinese learners in western universities can demonstrate evidence of critical thinking (Jones, 2005). Jones found that Chinese international students showed a similar level of critical thinking as other students when engaged in a task in an introductory economics class in an Australian university. This was despite the fact that they were not working in their first language and they had not experienced similar tasks in their previous education. Jones concluded that the context, including the teaching and assessment, was very important in influencing students' approaches to learning.

There is literature that casts doubt on some of the characteristics of Chinese learners that are attributed to Confucian traditions such as reticence to speak in class unless called upon (Liu & Littlewood, 1997; Shi, 2006). Liu and Littlewood (1997), in a large scale study of university students in Hong Kong, found that students wanted opportunities to speak in class. These authors attributed the students' reticence in class to their learning experiences at high school where they were required to keep quiet and listen. This contributed to their lack of confidence in their oral English. Shi (2006) found that Chinese middle school students wanted to ask their teachers questions and believed that their teachers would be willing to answer them.

The stereotype of Chinese learners who prefer didactic approaches may be based on a response to the teaching and learning conditions rather than a cultural preference. McKay and Kember (1997) challenge the reported preferences of Chinese students for a didactic approach to teaching requiring rote memorisation of facts. In their study they compared two intakes in a Hong Kong diploma course before and after the course had been revised in line with principles for engaging students in deep learning. Students preferred the student-centred learning environment and had a positive approach to deep learning. Kember (2000) reports on the introduction of a large scale teaching innovation study in Hong Kong involving

such activities as problem-based learning, group projects, and peer teaching. Students willingly participated in these activities and were positive about them. Wong (2004) points out in a study of Asian tertiary students studying in Australia that they preferred student-centred approaches to learning rather than the more didactic approaches that the students may have experienced in their previous education. Even though dialogic approaches may be the preference for some Chinese students, students in New Zealand universities report that the change in approaches from their previous education was difficult for them and required adjustments (Holmes, 2004).

Cultural influences on approaches to learning

The idea that CHC traditions produce surface learners is open to debate (Biggs, 1996; Lee, 1996). Early Confucian education encompasses aspects of Socratic style. Jin and Cortazzi (2006) see the CHC construction of the Chinese student as a representation of positive, desirable personal traits that have been developed within the educational contexts of learning in the students' home countries. It is their opinion that the long process of learning Chinese characters, which requires modelling, repetition and active memorisation, influences how Chinese children see the learning process. These methods are reinforced by the way English is taught at school. Jin and Cortazzi (2006) provide a model of how student learning can be conceived in CHC societies. At the centre of this model is the continuous effort that is needed to study, inquire, think, sift and practise. This continuous effort is based on the premise that "If you make enough effort, you can grind the iron pillar into a needle" (Chinese proverb cited in Jin and Cortazzi, 2006, p.13). Both intrinsic and extrinsic outcomes are fuelled by effort. Deep reflective processes are important for intrinsic outcomes. The job of the teacher is to lead the student to become independent. Chinese students are likely to attribute success to effort rather than ability which sheds light on the process of repetition and memorisation with the intention of developing understanding (Dahlin & Watkins, 2000).

There have been a number of studies of Asian students in the discipline of business and commerce (Cooper, 2004; Donald & Jackling, 2007; Holmes, 2004; Ramburuth & McCormick, 2001). A large scale Australian study of 1235 commerce and economics students investigated the similarities and differences between local and international students in their approaches to learning, motivation and strategies. The international students are mainly from Asian backgrounds (Ramburuth & McCormick, 2001). They found that the international undergraduate students had a significantly higher group mean for a surface approach to learning and no significant difference for

their group mean for deep approaches to learning than Australian students. The author concluded that there was evidence that international students do engage in a deep approach to learning and that a deep and surface approach may not be mutually exclusive. Holmes (2004), in her study of Chinese learners in New Zealand, indicates the overlap between deep and surface learning is not clear for Chinese students. Using a version of the SPQ, Donald and Jackling (2007) found that Chinese students were significantly lower on their surface approach and significantly higher on their deep approach than domestic students in a study of accounting students in an Australian university. These findings align with research by Cooper (2004) when comparing the approaches of undergraduate Australian and Chinese business students. The author suggested that the complexity of the nature of memorisation in bringing about understanding may have contributed to these results.

The SPQ has been used to compare students studying in disciplines other than commerce. Kember (2000) uses SPQ data to compare students in Australian universities with students studying similar subjects in Hong Kong. The Hong Kong students have a lower surface approach score and the same deep approach score to their counterparts in Australia. Brand (2001) uses the SPQ to compare undergraduate music students studying in the United States with music students studying in Beijing. There was a significant difference in surface motives and surface strategies. The American group scored significantly higher for surface motives and strategies indicating a greater tendency to rely on extrinsic motivation and rote memorisation as a learning strategy.

Achievement and Chinese learners

The “paradox of the Asian learner” (Biggs, 1998b, p. 723) is a challenge to stereotypical views of students from CHCs as passive rote learners. They out-perform their counterparts in the United States in mathematics and science (IES National Centre for Educational Statistics, 1999). Within western institutions such as American universities, Asian Americans have higher grade point averages than other minority groups and whites in some areas (Goyette & Xie, 1999). As first year undergraduates in the United States, Asian international students report being more engaged in activities that link to engagement in their studies than domestic students (Zhao, Kuh, & Carini, 2005). In New Zealand secondary schools, Asian students engaged in study for the National Certificate of Educational Achievement (NCEA), an assessment for university entrance and a secondary school qualification, are more likely than European, Pacific and Māori students to report being motivated by ‘doing my best’ rather than ‘doing just enough’ to pass (Meyer, Weir, McClure, Walkey, & McKenzie, 2009).

Discussion of the research on the Chinese learner

While research has been presented in this section which gives insights into this paradox, I have also argued that the concept of a 'Chinese student' is fluid. Chinese learners are, on the one hand, a stereotype and, on the other hand, a dynamic concept that is situated in time and place. Hence, this research must be evaluated critically by looking at when and where it was carried out and the limits on the generalisability of findings to participants in a study of Chinese learners in a New Zealand university. Ryan and Louie (2007) put forward the idea that focusing on the differences between western and Confucian ideas of scholarship is a false dichotomy. While the research on the Chinese learner has helped refute deficit images of Chinese learners, it may have created positive stereotypes which are also not useful. Even the coining of 'the paradox of the Asian learner' implies that western teaching methods are assumed to be superior, since the Asian learner is not expected to achieve highly.

However, without treating Chinese learners as a group, the streams of research that give insights into Chinese students' motivation and approaches to learning would not have been possible (Rastell, 2006). Therefore, while it is possible to contest the notion of a Chinese learner, it is also useful to have this notion. Chinese learners are characterised by "sharing a relatively homogeneous linguistic and cultural heritage which is held to be common though it is known to embrace diversity" (Jin & Cortazzi, 2006, p. 9). This definition allows the characteristics of Chinese learners to be further investigated as learners in western university settings. At the same time, it helps guard against overgeneralisation and subsequent stereotyping, which, as Scollon and Wong Scollon (2001) remark, can limit understanding and be used to justify preferential or discriminatory treatment of groups of people without recognising the range of intracultural differences. The notion of a Chinese learner engaged in learning though English within a western university forms an important part of the conceptual framework for this study.

The integration of literature into a conceptual framework

The conceptual framework for this study draws upon both quantitative and qualitative literature. This fits with a pragmatic approach that is based on what works in a particular situation (Johnson, Onwuegbuzie & Turner, 2007). The description of this research approach and its rationale for selection is incorporated in Chapter Three.

While this study is focused on Chinese students, it is conducted in a multicultural setting where the participants are learning through the medium of English. The literature in this study draws on four main areas. These areas of research findings

and their relationship to this study can be represented diagrammatically in the metaphor of a frame (Figure 1). There are four streams of research that support the frame of this study: student approaches to learning, the Chinese learner, learning for students who have English as an additional language (EAL), and assessment.

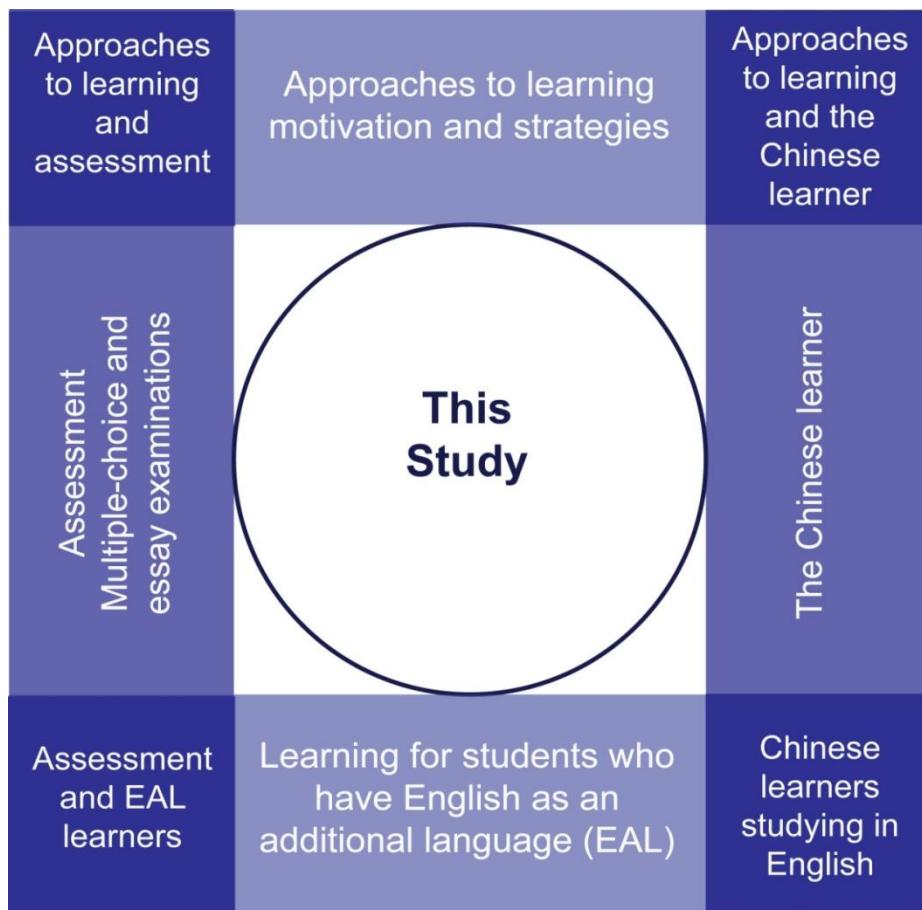


Figure 1: Literature framing this study

Research at the intersections between these main areas is of particular interest. These issues underpin the rationale for the study. They are represented in the diagram by the darker blue areas in the corners of the frame. In these areas, at least two components of the research were related to my study. Each of these areas came into sharp focus during different stages of my research. For example, studies of student approaches to learning that include Chinese learners as participants informed the selection of the version of the SPQ that was used in the quantitative part of this study. This is discussed further in Chapter Three. Previous research on student approaches to learning and assessment provided insight as the data were analysed by drawing on the phenomenographical approach in Chapter Six. Literature from assessment and EAL learners together with Chinese learners studying in English enabled the participants' language demands of the different examination formats to be considered. Particular elements of literature from each of

the areas provide lenses for the analysis of the findings of this study and were integrated into the model created in Chapter Seven.

Chapter summary

Chapter Two has provided an overview of the literature that has contributed to this study. The way that different fields of literature frame the study has been illustrated in a diagram that represents the conceptual framework of this study and indicates how some areas at the intersection of different fields have been mined to strengthen this study. I have briefly foreshadowed how different streams of literature have been used at various stages during the process of the research which aligns with a pragmatic approach which is discussed in the following chapter.

Chapter Three

Methodology

Introduction

In this chapter, I describe the research approach of my study including my position as a researcher and the role of my cultural advisors. I explain why a mixed method design is appropriate for this kind of research which is centred on cross-cultural issues. Each method is discussed separately.

The discussion of the quantitative method considers the selection of the sample and a description of the instruments. The process of data collection and analysis is described. The discussion of the qualitative method traces the process of the grounded theory method. Issues concerning sampling, interviewing and coding are described and reviewed.

Because this is a mixed methods study that combines inductive and deductive processes, matters that arise from the integration of the two methods are explained. I then consider validity and reliability for mixed methods designs. Ethical issues are discussed in relation to the data gathering.

The research approach

The choice of methodology assumes underlying theoretical beliefs about the nature of knowledge. The selection of a position with a research paradigm is a complex matter, shaped by the researcher's own belief systems and life experience (Morgan, 2007). "Research is engendered; it is already 'lived' by those faced with the task of learning its rituals, its language. It is also enculturated" (Giddings, 2006, p. 200).

Some difficulty arises when using the term 'paradigm' to identify an underlying theoretical perspective because this term has been used in a number of different ways to describe these beliefs and their impact for researchers. For example, Walliman (2006) identifies two main paradigms, positivism and interpretivism. Positivists take the view that there is one real world and its tenets are contained in the tradition of scientific method. Interpretivists take the view that our world is experienced for each of us through our perceptions that, in turn, are influenced by preconceptions and beliefs. Denzin and Lincoln (2003) have a broader view and place the positivist and postpositivist paradigms as interpretive by stating that "all research is interpretive: it is guided by the researcher's set of beliefs and feelings

about the world and how it should be understood and studied” (p. 31). On the other hand, Creswell (2003) identifies four alternative positions with associated assumptions that underpin knowledge claims in social sciences. These are postpositivism, advocacy/participatory, constructivism, and pragmatism.

This proliferation of taxonomies may have come from different meanings associated with the term paradigm. Morgan (2007) argues that there are four different definitions of paradigm. These range from “paradigms as world views ... [to] paradigms as model examples” (Morgan, 2007, p. 51). Morgan asserts that his second version of paradigm as an epistemological stance is currently the most favoured version. In contrast, a paradigm based in a pragmatic approach aims to identify which questions are worth asking in research and which methods are appropriate to use. This approach places methodology at the centre of the approach, as opposed to definitions of paradigm that place ontology, the nature of reality, as central. It allows for methods that produce seemingly incommensurate kinds of knowledge to be used. It uses intersubjectivity, relationships among knowledge sources, to strengthen claims for the transferability of findings. Although pragmatists recognise that research happens within social, historical and political contexts, they are willing to accept “truth as it works at the time” (Creswell, 2003, p. 12).

Mixed methods research is defined as “research in which the investigator collects and analyses data, integrates findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a programme of inquiry” (Tashakkori & Creswell, 2007, p.4). The combining of methods within a single study has created controversy since it involves resolving tensions that arise from different world views (Barbour, 2008; Creswell & Plano Clark, 2007; Lodico, Spaulding & Voegtler, 2006; Mertens, 2005). Continued debate is necessary to critically examine the underpinnings of mixed methods research so that emerging forms of qualitative research are not marginalised (Giddings, 2006).

Rather than focus on the incompatibility of paradigms, Johnson et al. (2007) argue that mixed methods research is located in a new world view. This pragmatic view of knowledge claims allows for the combination of qualitative and quantitative research. What works in terms of effective research is valued. The mixed method approach enables a researcher to focus on seeking solutions to problems and the use of pluralistic approaches to source knowledge that will assist in informing possible solutions to a problem (Creswell, 2003).

Two methods are used in this study. One draws on postpositivism through the use of questionnaires based on validated instruments and statistical procedures. This reflects the view that there are laws and theories that govern the world and that scientific method can investigate these but researchers can only reject hypotheses rather than prove them. Causes and effects can be associated with each other but not proved. Through the use of self-reported data in the questionnaires, the participants revealed their reality as they had constructed it. I did not make observations of behaviours or even objective measurements of achievement. Self-reported data from the questionnaire was combined with interviews using a constructivist version of grounded theory based on Chamaz (2006). Underlying constructivism is the assumption that individuals seek to develop an understanding of the world through constructing subjective meanings of a situation. Constructivism is defined as:

A social scientific perspective that addresses how realities are made. This perspective assumes that people, including researchers, construct the realities in which they participate. Constructivism inquiry starts with experience and asks how members construct it. To the best of their ability, constructivists enter the phenomenon, gain multiple views of it, and locate it in the web of connections and constraints. Constructivists acknowledge that their interpretation of the studied phenomenon is itself a construction. (Chamaz, 2006, p. 187)

Hence, the nature of reality or ontology is relativist, assuming multiple realities, and a subjectivist epistemology with understandings being co-created between the researcher and the participants (Denzin & Lincoln, 2003).

One view of a mixed method design is that qualitative and quantitative approaches are not polar. Instead, they rest on a continuum (Bazeley, 2009). A constructivist view accommodates both qualitative and quantitative methods if it is appropriate, although qualitative methods are preferred (Mertens, 2005). Qualitative methods require rich data to be gathered and presented. This enables researchers with a constructivist perspective to consider the interconnected nature of the data and its context and to explicitly examine their role in the interpretation of it. This mixed methods study is placed closer to the qualitative end of the continuum than the quantitative end and is influenced by constructivism. The position of my study is discussed further in this chapter when a rationale and type of a mixed methods study are provided.

No research can be independent of the values of the researcher. It is a product of the researcher's values (Denzin & Lincoln, 2008; Mertens, 2005). Behind all phases of research is the "biographically situated researcher" (Denzin & Lincoln, 2003, p.

30). Because researchers bring their own values and perspectives to research, these should make these explicit (Mertens, 2005). I will examine my own values in this study by looking at my position as a researcher.

My position as a researcher

Reflexivity enables me to engage with my research in a way that assists in guarding against unwarranted assumptions coming from my own background (Barbour, 2008). Hesse-Biber (2007) argues that reflexivity is an essential process during all parts of the research. It involves examining one's own biography and its impact on the research process. Any biography is set within the social, economic and political context which contribute to the values and motives that a researcher brings to the process. Reflexivity is:

The researcher's scrutiny of his or her research experience, decisions, interpretations in ways that bring the researcher into the process and allow readers to access how and to what extent his or her interests, positions, and assumptions influence the research. (Chamaz, 2007, p. 609)

Cultural diversity has primary importance in this study (O'Neil, Green, Creswell, Shope & Plano Clark, 2007). My own life experience, both personal and professional, has shaped this as my research topic. Details of my biography are given in a personal statement in Appendix A. Through the process of living in Asia and being involved in teaching and professional development courses for teachers over many years, I was able to experience culture as dynamic and with multiple layers as it is described by Salili and Hoosain (2007). These authors pointed out that although cultural identity is constantly changing, it can be passed from one generation to another. As a teacher and, later, a teacher educator in Asia and New Zealand, I observed how school experiences can influence the creation of cultural identity.

My choice of a mixed methods approach came from an interest in quantitative research from my bachelor's degree in agriculture and familiarity with qualitative research from my master's degree in applied linguistics and qualifications in education. A mixed methods study enabled me to combine approaches that I had brought with me from my previous education as I was able to see value in both quantitative and qualitative methods.

My life experience has contributed to the data analysis. Kelle (as cited by Byrant & Chamaz, 2007, p. 611) defines the role of theoretical sensitivity in grounded theory as "the ability to see relevant data and to reflect upon empirical material with the help of theoretical terms." It provided ways of seeing the data so that codes can

emerge. During the period of this study, my research journal provided a means of reflexivity and a record of this process. At every stage, I was aware of the need to move beyond my own cultural perspective because my participants had a very different cultural background to me. Hence, I sought help from cultural advisors.

Cultural advisors

The concept of diversity has a primary place in this investigation as opposed to cultural diversity being included incidentally in a wider study (O'Neil et al., 2007). Cultural diversity was recognisable in the topic of this study and was central to it. One cultural group of students was identified as a focus, not with the aim of comparing them to others, but rather to investigate their experiences within another culture. Chinese students in a western university are at a point where Eastern and Western values and experiences intersect for each individual. This study reflects the Chinese students' perceptions at this point. These perceptions are interpreted through the researcher. In order to protect against misinterpretation or misunderstanding and to increase theoretical sensitivity, two Chinese cultural advisors were part of this project.

Just as I bring my own biographical experience to the research, so do the cultural advisors. Cultural advisor A is from mainland China, holds a PhD in applied linguistics from a New Zealand university and works within the area of learning support in tertiary education. She provided feedback during the development of the research proposal and critically evaluated the instruments that were used. Cultural advisor B is a professor of comparative education in a Taiwanese university and had experience living in New Zealand as a post-doctoral scholar. She also gave feedback on the instruments. In the early stages of coding with the first and second group of participants, she discussed coding especially in terms of cultural dimensions of the data. As I wrestled with the criteria that might guide the early stages of theoretical sampling, she provided suggestions based on her knowledge of working with Chinese university students in Taiwan. She was also active as a researcher in the area of aboriginal Taiwanese peoples. Once data had been collected and analysed, she collaborated with me in re-examining some of the data to check assumptions and to critically evaluate the process in light of her own experience and knowledge. She supported the process of developing theoretical sensitivity by discussing the form and relative importance of categories. This cultural advisor also provided me with background experience with students from Taiwan, as I was less familiar with the Chinese students from this region.

Because the input from my cultural advisors came at different stages of the research processes, I was not faced with conflicting advice. Both advisors were academics and very familiar with robust discussion of research. The process of advising was through a consensual discussion, much like that of a thesis supervision meeting. In the case of A, this was done by email. During the period that I was analysing my qualitative findings, I was able to visit B in her university and discuss my findings with one of her PhD students, a Taiwanese Chinese teacher. After this, my advisor required me to defend each of my qualitative findings by linking them to the data and considering them in the cultural context. Her own academic speciality of comparative education provided a basis for critically analysing my categories and the nuances of their meaning in light of culture and language. An example of this was a discussion of cue seeking by Chinese students. By questioning the data, probing the possible meanings of words in English and Chinese, discussing the role of examinations in Chinese history and culture, we were able to agree that calculating was a better word to represent state of mind and the kind of processes that the participants were engaged in when preparing for examinations. Both advisors brought not only their cultural knowledge but also their knowledge of research to my study.

The assistance provided by my cultural advisors opened cultural insiders' perspectives to me through these questions, insights and suggestions. This combined with my own background as a multicultural educator contributed to my confidence in making decisions during the research process. It allowed me to appreciate the multiple views of the phenomena being studied and to deepen my understanding of the constraints and connections. Both of these processes are essential when researching within a constructivist paradigm (Chamaz, 2006).

Rationale for choice of methods

A mixed methods approach was selected because of the complexity of the research setting and the importance of investigating the participants' perceptions of the constructs in an intercultural investigation.

Mixed methods studies are typically used in a situation where both qualitative and quantitative research approaches can provide a better understanding of the problem (Creswell, 2009). This is particularly important when the problem is complex. The situation of Chinese students studying in a New Zealand university is multifarious in that it is embedded in an intercultural context. Participants are immersed in a

process of academic study that may have varying degrees of linguistic and cultural difference from their previous experiences in their home country.

Two main methods are incorporated in this study. The first of these was a survey to generate data for statistical analysis. The survey methodology opens the possibility of findings being generalised to a wider population (Creswell, 2003). Within the design of a survey instrument, implicit assumptions are made based on common knowledge. Kelle (2006) points out that “these heuristics of common sense knowledge cause no major problems especially if the research takes place in the researcher’s own culture” (p. 296). Although this research takes place within my home country, I belong to a different cultural group from the Chinese participants in the study. The culturally specific knowledge increased the complexity of the relationship between variables and could lead to misinterpretation of evidence that came solely from the quantitative research. For example, literature reviewed in the previous chapter has indicated different meanings and uses of memorisation for Chinese students in bringing about understanding (Au & Entwistle, 1999; Marton et al., 1996; Sachs & Chan, 2003). Dellinger and Leech (2007) point out that it is through qualitative methods that constructs can take form and the meaning becomes clearer.

Qualitative research methods provided a way of filling out the subjective meanings of constructs such as study strategies and motivation of the participants. A constructivist viewpoint enabled the complexity of the socially constructed context of Chinese students studying in western universities to be represented. Subjective meanings are negotiated historically and culturally. This view of ontology allows for the use of grounded theory. Grounded theory can be seen as a “family of methods” (Bryant & Chamaz, 2007, p. 11). Chamaz (2006) describes two versions of grounded theory, constructivist and objectivist grounded theory. The objectivist version of grounded theory was initially developed by Glaser (1978) and is based within a post positivist view. Locke (2001) argues that grounded theory can be located in the interpretive paradigm. It sits upon the concept of symbolic interactionism as a way to learn about the world. The researcher is part of the world, although the data that are generated reflect the research participants’ experiential views of the world. Data and emerging theory are not waiting to be discovered. Rather they are constructed through interaction between the researcher and the research participants (Chamaz, 2006). This is a constructivist version of grounded theory. I selected this version of grounded theory because the processes of interviewing and surveying participants generated the data, rather than data coming from my observations of processes. Chamaz (2007) remarks that objectivist grounded theory “attends to data as real in and of themselves

and does not attend to the processes of their production” (p. 131). To guard against my own cultural perceptions distorting my view of the data, the two Chinese cultural advisors were involved in my research.

Thus, the argument for a mixed methods design in this study is based on the complexity of the research questions that contained embedded cultural issues both for the researcher working with a cultural group other than her own and for the participants as they live and study in a culture other than their home culture. Context formed an important part of this study and the use of quantitative methods alone can strip away context (Hooper, Thirkell, & Huff, 2007). Qualitative methods alone would not have allowed the hypothesis testing adding strength to the relationships among the variables. A single method may not have been as effective in seeking answers to the question in comparison with a mixed methods approach.

Type of mixed method study

Mixed methods researchers must make decisions regarding the status of each of the methods and the time order sequence of the collection and analysis of the data (Creswell, 2003). Because quantitative studies have been done before in this area and have yielded conflicting results (Scouler, 1998; Smith & Miller, 2005; Tang & Biggs, 1996), in this study, qualitative data are given a dominant position.

This version of a mixed methods study is an explanatory model with a sequential design Quan → QUAL (Creswell, 2003). This means that the quantitative data were collected before the qualitative data that were analysed in rounds as detailed below.

The data were gathered in two phases. These are illustrated in Figure 2. In the first phase the survey remained accessible electronically from 7 September, 2007 to 27 March, 2008. Potential participants for the survey were recruited from the university by personal contact and snowball sampling. Participants in the qualitative study were drawn from volunteers completing the survey. There were four rounds of qualitative data collection in the first phase with 13 participants. Selection of the participants for interviews is discussed in the qualitative methods section of this chapter. During the first quantitative phase I was aware that the method of recruitment of participants had inherent bias. Personal contact was made with potential participants by approaching them on campus, explaining the purpose of the research and checking their edibility. Suitable participants were then invited to provide their email address so that they could be sent an invitation with a link to the survey. The presence of these students on campus suggested that this sample of students would represent those who were

motivated and attending lectures. The times of day, the days of the week and the frequency and duration of time that I spent on each campus influenced the types of students that were included in the sample. After a preliminary analysis of the data, I became aware that a larger sample size was necessary with a more effective way of making sure that all potential participants could be part of the sampling frame. I approached the central administration in the university and gained permission to access the email addresses of all potential participants in the university that year. Approaching the university administration to provide email addresses was not initially planned since I was aware of privacy regulations that I thought would have precluded the release of such information. I was unaware that the university had already sought generic permission from students to release email addresses to researchers for specific purposes.

The second quantitative phase took place between 3 October, 2008 and 27 October, 2008 when a modified, but equivalent, form of the survey was made accessible electronically and participants were recruited by email using the university's data bases. Participants who had completed the survey in Phase one were excluded from the sample. An additional five volunteers from the 93 participants in the survey were selected and interviewed to complete the qualitative phase. All participants had completed the survey before they completed the interviews. The qualitative data analysis was started before the quantitative data analysis. It was a recursive process that will be described and illustrated in the next section under the description of the qualitative methods. All participants were given a number/letter code to maintain confidentiality but, at the same time, to allow data to be traced to the original source. These number/letter codes are used to source quotations and to identify specific participants.

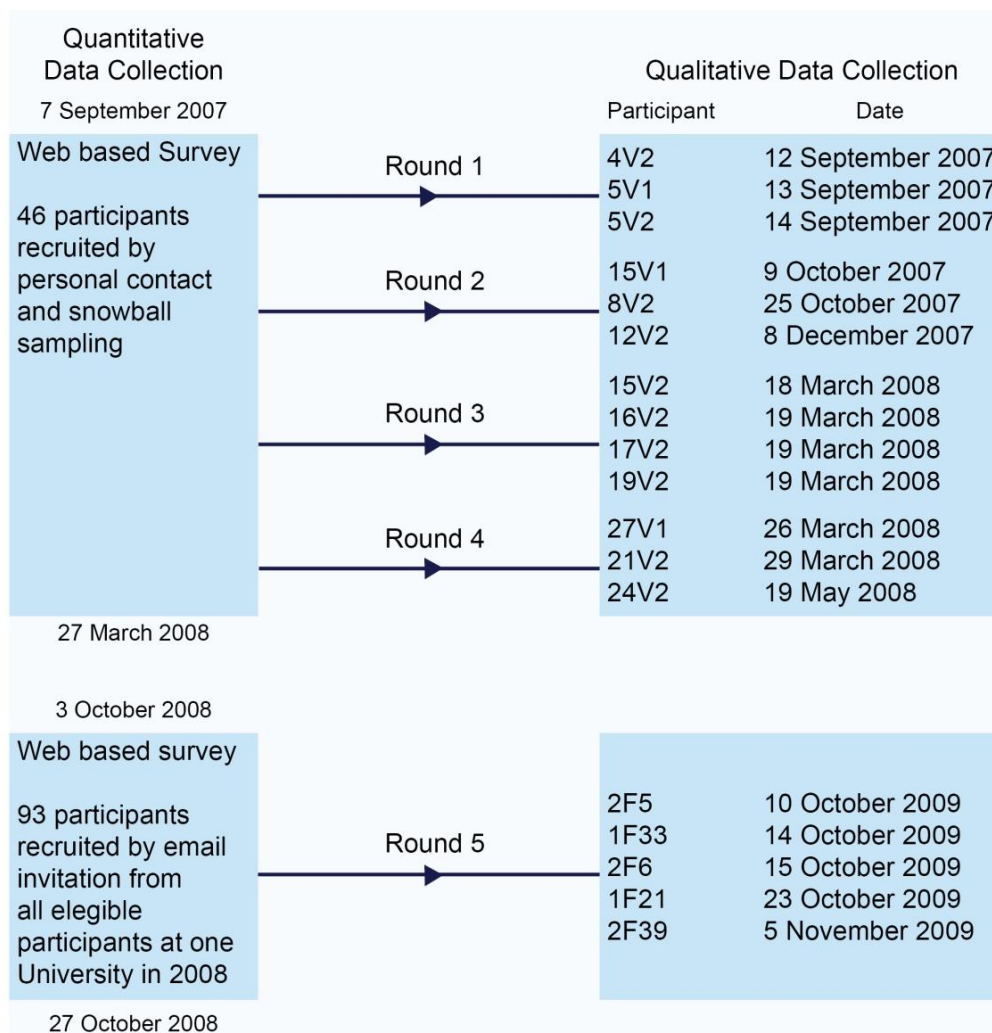


Figure 2: The process of collecting quantitative and qualitative data

The results were merged to develop an understanding of the research problem that could be represented in the form of a model. Information that was collected with the survey allowed the selection of participants for the interviews that followed. Analysis of the qualitative data enabled the results of the quantitative data to be interpreted further. The nature and the complexity of the research question meant that the methods were complementary both in addressing the strengths and weaknesses of each method and in covering the range of the questions. Each method provides “a differing partial picture” of the object that is being studied (Gorard & Taylor, 2004, p. 46). The design of each method is discussed separately in the next sections, including the choices of instruments.

Quantitative method

In this section, the participants, the sampling methods, the instruments and data collection and data analysis are discussed.

Participants

The definition of the participants to be included required consideration of the characteristics they had in common and an awareness of possible differences (Smith, 2001). The participants were all undergraduate Chinese students in a large urban university in New Zealand. All had experienced education in Hong Kong, mainland China or Taiwan but, during their period of study in New Zealand, some had become permanent residents of New Zealand while others continued to maintain their status as international students paying full fees. The intention of the initial planning for the sample was to limit the Chinese student participation to international students whose fees were not subsidised by the New Zealand government. However, data from interviewing of participants recruited from the first quantitative group indicated the need for students who were permanent residents to be included. The inclusion of these students enabled the gaining of a global identity to be investigated as an aspect of motivation. Hence, the decision was made to extend the definition of appropriate participants to those Chinese students who had been international full fee paying students at the commencement of their studies but who may not have been full fee paying students at the time of completing the survey or being interviewed.¹ All participants had spent varying amounts of time in western education systems. This could include a semester at university or one or more years in a secondary school in New Zealand, an English language school, a university preparation course in New Zealand or overseas, as well as direct entry to study at university from a Chinese school or university. All would have experienced a transition from an education system in one country to that of another and been exposed to the assessment systems that are used in New Zealand tertiary education.

All the participants were bilingual or multilingual and had met New Zealand university entrance requirements. In order to enter an undergraduate programme at a New Zealand university, students from abroad must demonstrate that they have a sufficient level of English. Some ways in which this might be done are by qualifying for university entrance at a New Zealand secondary school with the NCEA, achieving a level of 6 or greater in the International English Language Testing System (IELTS), gaining a score of 575 or higher in Test of English as a Foreign Language (TOEFL) or gaining a passing grade in an approved university preparation course.

¹ Undergraduate international students pay for their university study themselves without a subsidy from the New Zealand government. Permanent residents are eligible for the same government subsidy for their fees that New Zealand citizens have. Immigrants who meet specific selection criteria may spend various amounts of time as permanent residents before successfully applying to be citizens of New Zealand. The process can take anywhere between three months and several years.

All participants were of Hong Kong, mainland Chinese or Taiwanese origin. While the Chinese people of these regions share a common Confucian heritage, it is recognised that they are not homogeneous. There are distinctions among these three groups including different oral languages based on regions and, in the case of Hong Kong, Taiwan and mainland China, different versions of written Chinese characters. There is also a distinction in terms of family structure, with mainland Chinese students having been born during the period of the one child policy in their homeland. Each region has a unique history and elements of that may have impacted on the upbringing and values of the participants. These include the influence of the cultural revolution on society in mainland China, the period of British rule in Hong Kong, the factors behind the migration of the Chinese to Taiwan, and the Japanese colonisation sinozation, and Taiwanization movements in Taiwan. These social and historical factors are reflected in different points of emphasis in the education systems of these regions (Hwang, Ang, & Francesco, 2002).

Chinese students from other countries were excluded to limit to some extent the variability that comes from demographics and from assimilation of Chinese over generations into other cultures. Chinese populations have long been established in South East Asia and there have been more recent waves of immigration to western countries. The result of this movement is the possibility of greater diversity among similar cultural groups located in different countries. The participants in this study were confined to those Chinese who had been, or are, international students born in the three regions selected. Those Chinese students who identified themselves as ethnically Chinese but were born in New Zealand are excluded. The study also excluded participants who may have Malaysian or Singaporean nationality, countries where large Chinese communities have been present as a minority group for some generations.

Sampling

The context of the sampling frame

Participants were drawn from eligible Chinese undergraduate students from all disciplines in one New Zealand university. This university enrolls approximately 22,000 students located across four campuses in one city with the following faculties: Science, Humanities and Social Sciences, Commerce and Administration, Architecture and Design, Education, Engineering, and Law. In 2008, 637 Chinese students who were not New Zealand citizens were enrolled as undergraduates.

Method of recruitment

All the Chinese undergraduate students who were eligible to take part in the research in the selected university were invited to participate. Participants were recruited through email invitations sent to their personal email addresses. They were invited to complete an on-line survey. The email addresses were obtained through the university data base which enables filters to be applied for ethnicity, types of fees and residency status but it does not allow sorting by home country. This resulted in Chinese students other than those from the target regions receiving the invitation. Even though the email invitation and the information on the opening page of the survey clearly stated that students must be from the designated countries, 14 responses were received from Malaysian participants. Hence, their responses were discounted from the sample. The final sample size was 93 after the responses from those who were ineligible had been excluded. Three reminders were sent out over a period of three weeks. This method of sampling enabled the total population of undergraduate Chinese students who met the selection criteria in this university to become potential participants. However, it did not allow calculation of the exact number of the eligible participants. Thus, response rates for the survey cannot be calculated accurately from among the unknown total who met the criteria for inclusion in the research sample.

The characteristics of the participants

The gender composition of the sample was 53% ($N = 49$) female and 47% ($N = 44$) male. Within the sample, the time spent in an undergraduate programme was represented with 27% ($N = 25$) of the sample having spent less than one year in a degree programme, 15% ($N = 14$) having spent between one and two years, 34% ($N=32$) having spent between two and three years and 24% ($N=22$) having spent more than three years. Fifty-three percent ($N = 52$) of the participants were enrolled in Commerce or Commerce and Administration.

When asked about their educational history, 19% ($N = 18$) stated that they had no prior experience of education in New Zealand before entering university. Thirty-eight percent ($N = 35$) had been to high school in New Zealand while the remaining 50 students had been to language school, university preparation courses or studied at pre-degree (diploma) level in a New Zealand university. In terms of their self-report of achievement, 69% identified as gaining *mostly Bs or above* while 29% stated that they gained *mostly Cs or below* with 2% not completing this section. The majority of the students, 86% ($N = 80$), were from mainland China, while 14% ($N = 13$) were from Taiwan or Hong Kong. Further information about the composition of the sample is contained in Appendix B.

Quantitative Instruments

Adaptations of two validated questionnaires were used as instruments. (see Appendix C and F). These were “Patterns of Adaptive Learning Scales” (PALS) (Midgley et al., 2000) and “The Study Processes Questionnaire” (R-SPQ-2f) (Biggs et al., 2001).

Rationale for using an adapted form of PALS

Goal orientation theory led to the development of PALS as a tool for examining the connection between students’ motivation, affect and behaviour with the learning environment (Midgley et al., 2000). PALS has been widely used in studies of school students (Ross, Blackburn & Forbes, 2005) including recent research involving students in mainland China using a translation of the tool (Liu, 2003). Ross et al. (2005), in their reliability study of PALS, found that the later versions of the instrument are more reliable and this gives more weight to the inferences made from them.

Items used were selected from the subscales based on their suitability for measuring goal orientation, motivation and engagement. Those items which were most likely to be pertinent to students studying at university level were selected. Because the context of the study was important, items from both personal and classroom adaptive scales were included. Each item was measured on a five point Likert scale (1 = *not at all true*, 5 = *very true*). To measure the students’ reasons for engaging in academic behaviour, three subscales of the Personal Achievement Goal Orientation were used. The five items from Mastery Goal Orientation measured the students’ desire to develop competence through gaining mastery and understanding. In the process, the respondents are focused on the task. This contrasts with the other two subscales in this section where respondents are focused on self. The five items from the performance-approach goal orientation measured students’ purpose of demonstrating their competence especially in terms of how they perform compared to others. The four items in the Performance Avoidance-Goal Orientation evaluated a student’s desire to avoid the demonstration of incompetence. Each of the subscales of the Personal Achievement Goal Orientations has been associated with patterns of learning. These were:

- Mastery Goal Orientation – adaptive patterns of learning
- Performance-Approach Goal Orientation – adaptive patterns of learning at college level.
- Performance-Avoidance Goal Orientation – maladaptive patterns of learning.

The corresponding three areas of Classroom Goal Structure were selected to measure the students' perceptions of the purposes for engaging in academic work that were emphasised in their courses. Academic Efficacy was selected to find out the students' perceptions of their own competence to do course work, and Parent Mastery Goal Orientation aimed to examine students' perceptions that their parents wanted them to develop their competence. The items from the different subscales of PALS were then randomly ordered.

The original wording of the survey was modified to reflect the tertiary learning environment, for example, 'class' became 'course'. The wording and modifications were reviewed by several education academics and a group of four students. The survey was administered to the initial group of 46 Chinese undergraduate students at the university who were recruited through personal contact. These participants were excluded from the final quantitative survey sample of 93. Further minor modifications were made based on feedback. The original Items PALS items (Midgley et al., 2000) with their descriptive statistics are included in Appendix F.

Rationale for using an adapted form of R-SPQ-2f (Biggs et al., 2001)

The second questionnaire used was a version of the Study Processes Questionnaire (SPQ) developed by Biggs (1987). The SPQ questionnaire has been widely used internationally (Brand, 2001; Ramburuth & McCormick, 2001; Volet, Renshaw & Tietzel, 1994). However, there are now a number of variations of the questionnaire that have been developed, not only to update it, but also to refine it for particular purposes (Fox, McManus & Winder, 2001; Wilding & Andrews, 2006). A two factor version is considered appropriate for the diverse student body in Australian universities (Zeegers, 2002). Another two factor version is R-SPQ-2f, a simple 20 item version which has been tested and refined for use by teachers to evaluate the learning approaches of both Hong Kong and Australian students at university (Biggs et al., 2001; Leung et al., 2008).

The design, length and validation process with Chinese university students made it appropriate for the investigation of the study habits and motivation of Chinese students in western institutions (D. Kember, personal communication, March 9, 2007)

This questionnaire enabled the deep and surface approach to learning to be investigated. Each approach has items that relate to motive and strategy. A five point Likert scale was used (1 = *never or rarely true of me* to 5 = *always or almost always true of me*). The questionnaire was then set within two different hypothetical scenarios. One asked students to respond as if they were preparing for a multiple choice examination and the other asked students to respond as if they were preparing for an essay examination.

This questionnaire was then trialled with 36 EAL students who were in a university preparation course. Approximately one third of them were Chinese. Any part where the students sought clarification was noted and the wording modified based on their feedback. The original R-SPQ-2f items (Biggs et al., 2001) are included in Appendix F with their descriptive statistics. The items are organised according to scales to show what items contribute to each scale.

Two versions of this adapted R-SPQ-2f (Biggs et al., 2001) were used with approximately equal numbers of participants. One version asked the participants to do the scenario related to multiple-choice questions first, and the other version presented the essay scenario first. Alphabetical lists of email addresses were created and the potential participants were directed to alternative versions of the survey in batches of 50. This was to reduce the possibility that students were influenced in their answers by which scenario they encountered first.

Both of these surveys were combined and followed with questions to collect information about the participants' present and past educational background, gender and preferences for types of assessment. In addition, four open-ended questions were asked at the end of the survey:

1. Why do you prefer multichoice or essay examinations?
2. How do you study for multichoide examinations?
3. How do you study for essay examinations?
4. How did you choose your course and your place of study?²

The survey was web based using the commercial provider, Go Fetch. The front page contained the information sheet, the second page contained the items from the adapted PALS and the third page contained the items from the adapted R-SPQ-2f (Biggs et al., 2001). Page four contained the information about the students and the open-ended questions followed in text boxes. Participants were invited to enter their email addresses for a summary of survey results and to have a 1 in 20 incentive to win a \$20 restaurant voucher. Participants were invited to volunteer for an interview by entering their email address.

Data collection and analysis

After analysing the qualitative data, I downloaded the quantitative data from the Go Fetch website into Excel spreadsheets for entry into SPSS, Version 16. Twenty three

² The data for the fourth question were not drawn on in the analysis of this study since they did not pertain to formats of examination questions.

participants had started the survey and then failed to complete it by visiting all of the five pages, the information and consent page, the modified PALS and the modified R-SPQ-2f (Biggs et al., 2001) questionnaire and background information. These false starts were removed since consent was signalled by completion of the survey. Those participants who did not belong to the sample group were also removed (e.g., the Malaysian Chinese students). After these procedures, a final group of 93 participants formed the quantitative sample. In accordance with ethical guidelines, no question was compulsory. Hence, subscale responses that did not have a complete set of items for an individual participant were not included in the mean. The number of complete responses was recorded for each statistical analysis.

Each subscale comprised a number of items. Totals of item scores of the adapted R-SPQ-2f (Biggs et al., 2001) subscales were used in the analysis. However, in the adapted PALS, means of the items comprising each subscale were used because the number of items comprising different subscales varied from three to six. In the process of aggregating the data that were used or finding means, the assumption is being made that the distinction of neighbouring points on the scale is always the same. In other words, the percentage change in frequency of actions between one and two is assumed to be the same as the percentage change in frequency of actions between two and three on the scale. This assumption is inherent when ordinal data are converted to scale data. The practice is supported by the designers of the survey instruments and is reflected in current research practice in the published literature with the scale.

The quantitative data provided evidence for investigating the first two research questions. These were:

- Do undergraduate Chinese students' perceptions of two different examination formats impact on their approaches to learning, study strategies, motivation and achievement in a western university?
- How do undergraduate Chinese students report engaging in study strategies for two different examination formats in a western university?

These were investigated by developing hypotheses and examined using tests of significance difference. A general hypothesis has been developed for each section as indicated below but specific hypotheses are stated in the next chapter.

Approaches to learning

Hypothesis

There is no difference between participants' approaches to learning when studying for multiple-choice examinations and essay examinations.

The approaches to learning subscale scores for each participant were compared using a two-tailed paired *t*-test. A Pearson Product moment was used to investigate the direction and strength of the linear relationships among the deep and surface approaches to studying for essays and multiple-choice examinations.

Motivation

This was investigated using two-tailed paired *t*-tests to compare the means of subscales of the adapted R-SPQ-2f (Biggs et al., 2001) for deep motives for essay examinations with the mean of the subscale for deep motives for multiple-choice examinations. The mean of the subscales of the surface motives for essay examinations was compared with the mean of the surface motives for multiple-choice examinations in the same way.

Study strategy

Hypothesis

There is no significant difference in the use of deep or surface study strategies whether students are studying for multiple-choice examinations or essay examinations.

This was investigated using two-tailed paired *t*-tests to compare the means of subscales of deep strategies for essay examinations with deep strategies for multiple-choice examinations. In the same way, the means of the subscales of the surface strategies for essay examinations were compared with the surface strategies for multiple-choice examinations.

Goal Orientation

The relationship between goal orientation and preferences for multiple-choice or essay examinations was investigated. This was done through the adapted PALS scales for personal achievement goal orientations and through the perceptions of classroom goal orientations. Two-tailed independent samples *t*-tests (grouping variable – student preferences for multiple-choice or essay examinations) of the subscales of the personal achievement goal orientation, performance-mastery goal orientation, performance-approach goal orientation and performance-avoidance goal orientation were performed.

Self-reported achievement

The relationship of achievement to types of motivation and to types of study strategies was explored using the subscales for motives and study strategies from the adapted R-SPQ-2f (Biggs et al., 2001) in the two scenarios. A two-tailed independent sample *t*-test (grouping variable - student achievement) was performed on the subscales of the deep and surface motives on the two scenarios. A two-tailed independent sample *t*-test (grouping variable - student achievement) was also used to compare the subscales of the deep and surface strategies when studying for multiple-choice examinations and essay examinations.

Qualitative method

In this section, the process of doing the grounded theory study is described. The purposive sampling methods, the interview process and the constant comparative analysis leading to the development of a model are discussed. The qualitative evidence contributed to investigating the second research question and provided data for the final two questions. These were:

- How do undergraduate Chinese students' perceptions of the requirements for language use in two different examination formats affect their study strategies in a western university?
- How do undergraduate Chinese students report using memorisation and understanding as strategies for two different examination formats in a western university?

The qualitative data also provided the framework for the integration of the data from the quantitative study.

The contribution of the sampling method to the grounded theory study

Sampling for data gathering in a grounded theory study is characterised by purposive sampling as is sampling in other qualitative methods. However, the distinguishing feature of sampling in grounded theory is theoretical sampling (Chamaz, 2006; Hood, 2007). Theoretical sampling in grounded theory is defined as:

A type of grounded theory sampling in which the researcher aims to develop the properties of his or her developing categories or theory, not to sample randomly selected populations or to sample representative distributions of particular populations. While engaging in theoretical sampling, the researcher seeks people, events or information to illuminate and define the boundaries of the categories. Because the purpose of theoretical sampling is to sample to develop theoretical categories, conducting it can take the researcher across substantive areas. (Chamaz, 2006, p. 189)

This process requires repeated cycles of data collection, coding and memoing as pictures of categories emerge (Chamaz, 2006). Sampling, data gathering, analysing data through coding, memoing and the development of categories are all part of the process of developing grounded theory. Therefore, each of these processes will be described with evidence of the decision making that transpired as codes arose and categories emerged to illustrate the characteristics of sampling in this grounded theory study.

The sequence of methods facilitated purposeful sampling. The quantitative method preceded the qualitative method. In addition to the two questionnaires in the survey, the participants provided the following information:

- Gender
- Degree that they were studying
- Study in New Zealand prior to entering an undergraduate programme
- Length of time studying in an undergraduate programme
- Home country
- Self-report of achievement
- Preference for multiple-choice or essay examinations
- Stated reasons for their preference
- A description of how they studied for multiple-choice examinations
- A description of how they studied for essay examinations
- Reason for selecting this university.

This information aided the identification of participants who had potential to contribute to the grounded theory data gathering and analysis processes. A more detailed description of how the data collection process worked follows.

The first round of data collection was convenience sampling from the first volunteers from the survey. Coding was begun immediately as required by grounded theory and formed the basis of initial theorising (Clarke & Friese, 2007). Each round of data collection was followed by coding, memoing, and further theorising. The biographical information and the open-ended questions in the survey provided a basis for selection of participants in the following rounds. The participants themselves also suggested other participants who they thought might be interesting or useful in providing data. This occurred when the participants received transcripts by email. In this email, as well as checking the accuracy of the transcript with the participant, I thanked each one for his or her time. I also summarised what I had found most useful and interesting in the data that they had provided. This also allowed me to check my interpretation of the data and

emerging categories with the participants. Three of the participants continued email conversations with me for several months after the interviews.

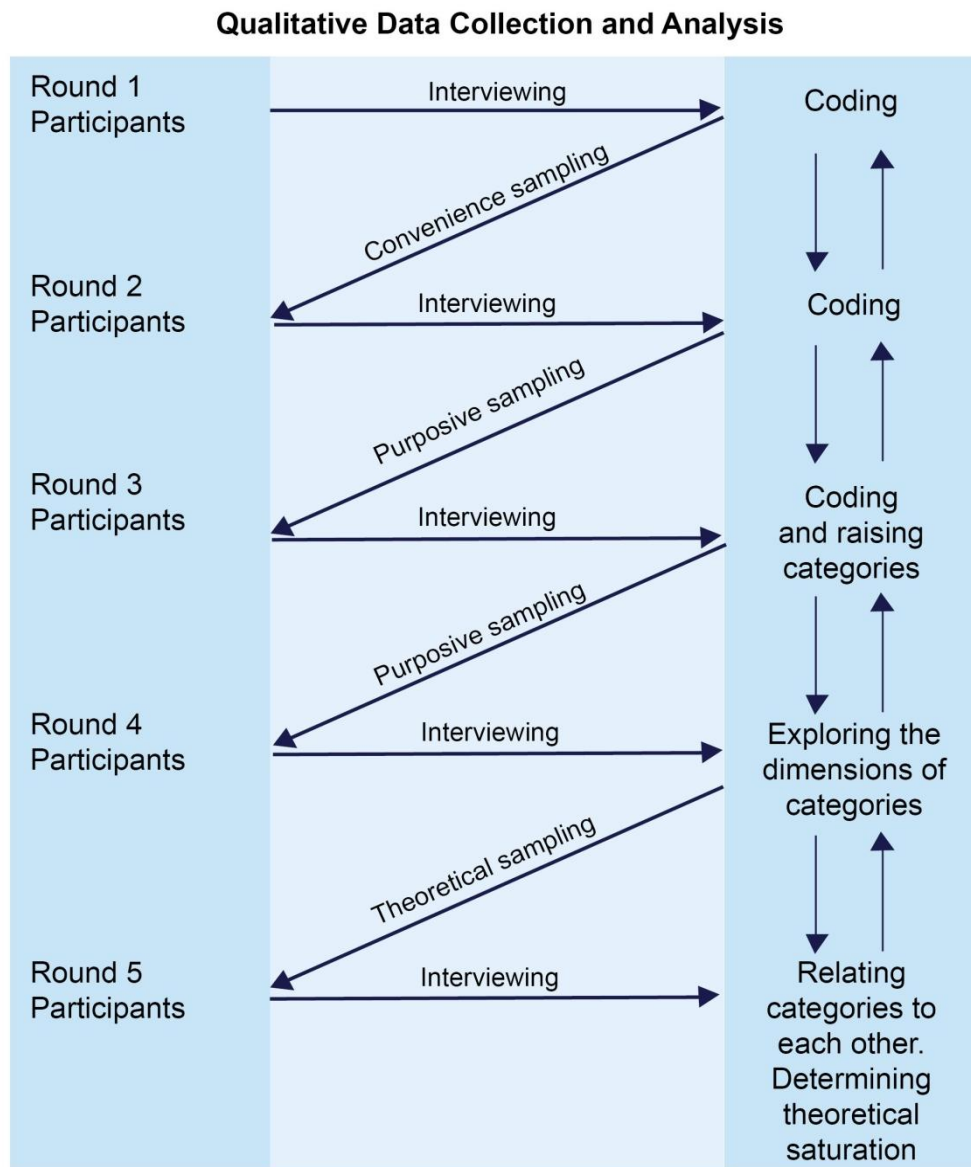


Figure 3: Rounds of data collection and analysis

Open coding of the first three interviews produced 49 initial codes. The purpose of selectively sampling these participants in the early rounds of interviewing was to understand Chinese students' attitudes to multiple-choice examinations and essay examinations as widely as possible. In each round, efforts were made to select "excellent participants" (Morse, 2007, p. 231) These were undergraduate students who had experienced multiple-choice and essay examination formats, were ethnically Chinese, had been partly educated in mainland China, Hong Kong or Taiwan and were willing and able to articulate their experiences in English. The information that was recorded on the survey about each participant enabled purposive sampling as the following examples illustrate.

An initial open code, *Learning English*, arose from the data. All of the first three interviews had contributed data to this code. The coding was reviewed with my cultural advisor. She pointed out that gender might be pertinent to the format of examinations. In her experience teaching in Chinese universities, female students more often excelled in writing English than male students. Multiple-choice questions require greater quantities of reading in comparison to essay questions which are a constructed response format and require writing skills. In addition, Bridgeman and Lewis (1994) also found that multiple-choice examinations may disadvantage women. In the next three interviews, a male was included which widened the perspectives. Purposive sampling further evolved during the third round of three interviews. For example, to fill out the dimensions relating to student background of the emerging category, *Learning English*, two students with very different experiences of learning academic English from previous participants were included. Both of these students had come from twinning programmes where the New Zealand university had an arrangement to teach some of its degree with a Chinese or other overseas institution. The Chinese students could transfer the credits to the New Zealand university when they enrolled in their study in New Zealand. These experiences contrasted with those who had completed pre-university entrance requirements such as Foundation courses or high school in New Zealand or had been eligible to enter first year undergraduate courses by taking an English language test.

As *Using study strategies* became significant as a category, the third round of sampling included a student who was older. This student was suggested to me by one of the participants in the previous round of sampling. The majority of participants up to this point were studying in the Faculty of Commerce and Administration where there are large numbers of Chinese students in every class. The selection of this participant, who was studying a Tourism degree where there were few Chinese students in classes, enabled the dimensions of group study to be further explored in a new context.

Using memory/ understanding was a category that was explored in memoing. Theoretical sampling in the final round of interviews allowed the ideas in this category to be checked with participants by selecting an arts student and an education student to be interviewed. This helped define how different forms of knowledge embedded within different disciplines impacted on the process of teaching, learning and assessment. A Chinese student from Hong Kong who was bilingual in English and Chinese and had been educated in English in Hong Kong

provided a contrast with the other participants who had all received their previous education in Chinese. This provided a perspective on assessment for a Chinese student where language was not a significant factor.

Data collection should continue until theoretical saturation is reached.. Chamaz (2006) defines this as when “fresh data no longer sparks new theoretical insights nor reveals new properties of these core theoretical categories” (p.113). The difficulty is recognising this point (Morse, 2007). The participants in Group 5 were selected after rereading memos and some modelling with the aim of generating new insights into categories. As the analysis of this series of interviews proceeded, it became clear that the data were confirming properties rather than generating new ones for the categories. While this indicated saturation, it is always possible that many more interviews might have generated extra data that would have contributed to the properties of categories.

In this study, the process of constant comparative analysis through rounds of coding and memoing enabled sampling to be purposive. When the analysis of new data seemed to provide no new ideas, this was taken as an indication that theoretical saturation had most likely been reached.

Interviewing

Semi-structured interviews were used to collect the qualitative data. Interview questions were trialled with a focus group of six Chinese students not otherwise involved in the study in a university Foundation programme. I received training in interview techniques from an experienced researcher and was coached through interview role plays. The main questions and the follow-up questions are contained in Appendix D. Commonly used probes were “Tell me a bit more,” and “Can you give me an example?”

Chamaz (2006) makes the point that “People construct data” (p.16). She recommends a reflexive stance within a constructivist version of grounded theory. Since this includes how the research is conducted and representations of the data, it is appropriate to examine the decision making process with regard to interviews and the collection and analysis of data. Interviews are complex interactions between the researcher and the participant that occur at a point in time and a place. All of this has the potential to affect the data that are gathered (Mruck & Mey, 2007). Therefore, it is relevant to consider how the participants were contacted, where the interviews took place, the role of symmetry and language in the interviews and the decisions made in representing the data from the interviews.

Recruitment

Those survey participants who had volunteered by giving their email addresses were contacted for an interview. While initial contact was made by email, 15 of the participants chose to organise the time and place of the interview in the same way with three using text messaging. All the interviews were conducted in places selected by the participants. All except one interview were conducted in public spaces on the campus of the university; the remaining interview was conducted in a coffee shop. The location of the interviews was intended to enable a setting where both informality and familiarity prevailed for the participants.

Positionality

O'Neil and colleagues (2007) encourage researchers to reflect on positionality when engaged in cross-cultural research. There was an obvious lack of symmetry between my position as researcher and that of the respondents. My position as an older woman, a member of the majority culture of the country and a staff member of the university all affected which data were constructed and how they were constructed. While this lack of matching could diminish the quality of the connection between the interviewer and the respondent, this was not always the case (Vincent & Warren, 2001). In this instance, the connection often seemed to be based on a sense of efficacy, where students responded to a university staff member who, they felt, might be a conduit to make their voices heard. At the same time, there was a risk of the participants using the opportunity of the interview as a "megaphone" (Mruck & Mey, 2007, p. 523) for communicating what they felt the university should know about them. Because there was no matching in terms of culture, participants were aware of the need to elaborate and explain issues (Mruck & Mey, 2007). I was obviously an outsider in terms of their culture and background and this gave opportunities for some participants to discuss individual views and contrast them to how they thought other Chinese students would have responded. Morse (2007) calls this "shadow data" (p. 238) which, in this case, was used as further grist for purposive sampling. The students themselves were sometimes able to refer me to others who had taken the survey and would be able to be informative about an aspect of the study.

Whose language?

Language was a central issue in data collection from interviews. Participants had varying degrees of fluency in English. At the onset of the research, I made a decision to interview the participants in English rather than use an interpreter. While the use of an interpreter would have allowed the participants to use their first language and to have greater fluency, it would also have introduced another person

as part of the data construction process. Barnes (1996) argues that all translation adds a layer of interpretation since language is a cultural construct. This applies to both questions and answers. The researcher has to rely on the interpreter to “interpret questions with the same shades of meaning” (Jentsch, 1998, p. 286). Vincent and Warren (2001) point out that the views of the respondent are filtered through the interpreter. At the same time, the interviewer may have less rapport in the interview since it is the interpreter who is working to build up a relationship with the respondent. Within a semi-structured interview, the use of an interpreter may inhibit the flexible nature of data collection as the researcher follows up on leads, gives both verbal and non-verbal responses that keep the communication flowing and allows spaces and silences (Esposito, 2001).

The use of an interpreter might have positioned the participants as not competent in oral English by revealing my possible underlying assumption that the respondents would not have enough English language to express their opinions and ideas ably. Instead, I endeavoured to acknowledge the multilingual skills of the participants by creating time and space for them to process the questions and to respond. The participants were shown all the questions before the interview started and given an opportunity to ask further questions. I took time to seek clarification if necessary and deliberately allowed silences in the interviews to allow time for organising of thoughts to elicit elaboration of ideas. Some participants used electronic dictionaries or asked for clarification at times from the interviewer.

Recording the data

In order to capture the most accurate representation of the data in the transcripts, I transcribed all the interviews. Aspects of pronunciation including word stress in sentences, intonation and inflection caused some difficulty in the transcription and required a clear understanding of the context to record them accurately. Grammar also varied and was often beyond the boundaries of the spoken grammatical variations of native speakers of English. Some respondents asked that this be “fixed” in their transcripts. When the grammar seemed to interfere with the reading of the transcript, then minor alterations were made to make it read more easily during the transcription process. All transcripts were checked back with participants. Some participants made general comments on their transcripts. These were about language, their experience of the interview, further thoughts that had occurred to them or just an offer to keep in touch. One participant changed some parts of her script which enabled me to gain a clearer insight into what had been said. This

willingness to elaborate on points in the data showed the strength of the participants' desires to make their views accessible as data to people outside their cultural group.

Coding

All qualitative data were stored, coded and analysed using NVivo 8 (QSR International). Two sources of qualitative data were generated. One source was from the interviews. The other source was from the open-ended questions in the survey instrument. These data were coded separately from the data from the interviews. The coding took place after all interview data had been coded.

The interview data were analysed using the principles of grounded theory as stated by Chamaz (2006). Open coding was undertaken with the first six transcripts, using the guidelines advocated by Chamaz, who urges researchers when coding to:

remain open, stay close to the data, keep your codes simple and precise, construct short codes, preserve actions, compare data with data, move quickly through the data. (p. 49)

Initial coding for me as a novice researcher was an exciting and nerve-racking process that moved upwards from the data. Star (2007, p. 84) describes codes as the "holding space of experience." However, Chamaz (2007) points out that as well as capturing experience, it is the first step in the analytical process of doing grounded theory. Initial, open coding involved comparing data with data within the interview text and then between the interview texts. There was a tension between sticking close to the data, as Chamaz (2007, p. 45) exhorts researchers to do, and the process of being analytical while remaining open to new ideas. Only one of the main questions on the interview schedule related to the two types of examinations – multiple-choice and essay questions – that were the focus for this study. Hence, many of the initial codes served to frame the experiences of the participants as Chinese students in a western university in New Zealand. Examples of the naming of initial codes were:

- Being brave
- Learning English
- Breaking away from parents
- Calculating risks.

Gerunds, such as *Doing* my best and *Connecting* with China, were used as often as possible with initial code names in order to keep close to the data and highlight the processes that were occurring (Chamaz, 2006). The naming of the codes using gerunds (verb + ing) reflects the active nature of the processes (Chamaz, 2006). I

struggled with the names of each code, trying to identify what defined them, what distinguished them and what they meant. This extract from my research journal illustrates the reflective processes that were happening.

“Developing independence” seems to be covering two things, both independence from parents, its original purpose and independent study habits. “Breaking away from parents” may be a better place for the comments concerned with becoming independent from parents. (Research journal, 7 October, 2007)

Within the constructivist view of grounded theory advocated by Chamaz (2006) a word-by-word and a line-by-line coding is suggested. Since the participants did not speak English as their first language, a word-by-word coding was essential, but at the same time, an incident-by-incident coding was often needed to make meaning from the communication. This was followed by focused coding where codes were sifted through in the process of making constant comparisons among items that had been coded, keeping in mind the background details of each participant which were available in the case book of NVivo. At this stage, it was possible to develop hierarchies of codes that enabled category dimensions to be defined.

Cycles of data gathering, coding, memoing and reflecting

Interviewing, transcribing, coding and memoing to promote further analysis was an iterative process. When new codes emerged after a round of interviewing and coding, previously coded transcripts were reviewed in case there had been unrecognised incidents of that code occurring previously. I considered the relationships of new codes with emerging categories by writing memos. Theoretical coding followed to enable the focused codes to have some coherence by bringing the data back together and representing it in the form of models (Chamaz, 2006). Further data were gathered to test the connections in the models until it seemed that theoretical saturation was approached.

Early memos during the second of the five stages of data gathering recorded the contribution that identity theory had to developing theoretical sensitivity. This memo also indicates some of the seeds of thought for constant comparative analysis of data with data.

Three interviews revealed some common themes – developing identity as international students by separating from parents, identifying people who can help in completing the demands of the assessment process and forming networks with them, managing time and managing self by using transfer of skills and self-knowledge. These themes seem to be common despite the different backgrounds of the students, an exchange programme student, a student who completed high school here and a student who went through foundation studies and university here. (Memo 17th September, 2007)

There was also evidence of the iterative nature of coding as the data demanded that new codes be created. This required integration with previous codes and the development of more theoretical codes that encompassed the ideas in other codes.

Learning English is another code that must be reviewed. English as it is perceived as a difficulty does not belong here. The name of the code is the problem. A better code could be “English language” as the parent and then “Language learning strategies”, “seeing English as a problem” and maybe “Language learning history” or something like that. I feel the need to troll through all the currently coded interviews once I recode. I am afraid that I have missed something. (Research journal, 7 October 2007)

The process of creating and recreating the initial open codes could be likened to doing a jigsaw with pieces constantly changing shape and other pieces missing.

At the same time as coding, I documented some of my struggles in my research journal. Essentially, my research journal served as a reflective journal in which I had conversations with myself in order to clarify my own thinking. It is in entries such as the one below that I show evidence of how the decisions that I was making were influenced by my previous education in applied linguistics, especially with regard to pragmatics and discourse analysis.

In this interview, language proved to be a barrier – or possibly expectation of what kind of answer was required and the nature of a non native speaker required clarification. This meant that the coding often had to include my questions as well as her answers. I am a little confused about how the sections are to be coded. Words alone do not seem to make much sense but according to Glaser I should be looking for the deeper meaning in words including adverbs and function words not just content words. Chamaz encourages the researcher to also consider the pauses and hesitations as signals for deeper meanings. However, in working with people with limited English language ability, it is hard to say whether these pauses are emotionally or linguistically based. (Research Journal, 7 October 2007)

At the start, all codes were represented as free nodes within NVivo without explicit links among them. As coding and memoing became more theoretical, I was forced to confront and see a resolution for the diversity of pathways that various researchers (Chamaz, 2007, Strauss & Corbin, 1990) offer as different ways for raising knowledge to the point where theory can be generated. From a constructivist perspective, Chamaz (2007) advocates focused coding as a way of becoming more directed, selective and conceptual. Focused coding served to seek the differences between multiple-choice and essay questions for each of the codes that evident. Those codes that showed explicit differences were the focus of more careful examination and had the possibility of being raised to a category. Categories are defined as “themes of basic information identified in the data by the researcher and used to understand a process” (Creswell, 2003, p. 404). This extract from a memo represents the process of trialling of raising *Perceiving task demands* to a core

category with its potential properties and their dimensions to represent the differences between studying for multiple-choice and essay examinations.

This perception of multichoice questions is a perception of the demands of the task of doing this type of question. This perception may arise from the degree of complexity and skill with which these particular multichoice questions have been constructed, the insight that a student has into the purpose and process of their construction, the predictability of the questions and whether application of particular preparation strategies are likely to be successful.

The majority of participants regard multichoice as easy. These students were more likely to be in their first or second year of study in a Western university. Multichoice tests enable these students to use learned skills of cue-seeking and memory accumulated in their previous assessment careers as test takers in their home countries. They often cue-look by checking previous examination papers and they estimate the number of questions that will be repeated in the coming exam. They may use memory of the question to produce an answer and do not feel a need to always understand even though that would be their first preference.

Students spoke of luck and just guessing with multichoice. Luck, fate, risking or gambling seem to be important elements especially when students are struggling with learning content in a new language. Luck enables them to do something – “guess” - and may give them a sense of agency when their cue-seeking has been unsuccessful. The feeling conveyed is that although the student may know nothing at least he or she can do something.

They perceive multichoice as relating to more trivial aspects of the course but with a limited range. The ideas can generally be found within textbooks and lecture notes rather than requiring extra readings and other sources. However, they see that it is important to read the whole textbook and all of the notes in order to prepare.

Other students regarded multichoice tests as more difficult than essays. These students thought that the questions were difficult and indicated complexity. These students regard multiple-choice as less predictable and therefore requiring wider reading beyond course notes and textbooks.

Essay type questions were seen to be more predictable because they were likely to focus on the main aspects to the course as opposed to multichoice questions which may be on minor aspects. This seemed to make the effort required to understand the course less likely to be attributed to success in examinations or to being able to demonstrate real understanding. (Memo: Perceptions of and preparation for multichoice examinations, 19 March 2008)

Chamaz (2007) deals with the various pathways through developing axial coding and the development of categories (Strauss & Corbin, 1990) to theorising in a less structured way. Although she claims that those who can tolerate ambiguity and flexibility need not require the support of axial coding and the subsequent development of dimensions and categories, she gives an example of a memo which represents the subcategories and the links between them. As is evidenced by the previous memo, I sought to develop links and find structure. The use of software, NVivo, invites structure and hierarchies with the facility for parent codes, children and grand children codes. This gave rise to categories with their dimensions.

Table 2: Categories with dimensions

Categories	Dimensions
Knowing the risk	Examination questions are predictable – Questions are unpredictable
Using discipline-specific discourse	Easy to understand and use subject language – difficult to understand and use subject language
Engaging in study strategies	Narrow range of strategies using defined content and individual study – wide range of strategies using group study and multiple sources of content
Being motivated	Just passing, using rote memory rather than understanding – doing your best and seeking understanding

At this point, one of my cultural advisors provided feedback through peer review. This process is especially important when the participants in a study come from a different culture to the researcher (O’Neil et al., 2007). Further informal discussion with former Chinese international students and extensive review of both the qualitative and quantitative data brought *Being motivated* to the fore with the need to specify purpose as in *Being motivated for academic success*. This process enabled a relationship among categories to emerge.

I have represented the process of gathering and analysing the qualitative data as a spiral with rounds of data being collected on one side of the spiral and coding and memoing leading to theorising on the other side in Figure 3. During the processes of coding and memoing, a range of tentative hypotheses is formed and subsequent rounds of data collection serve to confirm or eliminate these as well as generate more. At the early stages, these hypotheses were more likely to be about coding, but as the data grew, they focused on the relative importance of codes and the relationships among codes.

The process of grounded theory required inductive thinking with the analysis of data generating further ideas. Alongside this, the quantitative survey required deductive thinking as hypotheses were tested. Therefore, it is useful to explicitly describe how these two very different processes were integrated and to discuss the issues that arose in this.

The integration of contrasting methodological perspectives

Although this study has been presented as a sequential mixed methods study and the findings are presented separately, Creswell and Plano Clark (2007) point out

that “reducing research to phases in the process of research runs the risk of oversimplifying the procedures, suggesting an unwavering linear approach to research” (p. 2). Integrating the methods used in a study should produce findings that are better than just aggregating the two separate methods (Woolley, 2009). In my case, it is not just the findings from both methods that have contributed to the discussion and the creation of a model but it is the interaction of methods in the process of decision making at every step of the research. This includes the position of literature, the data gathering procedures, the analysis of all data, the discussion and the final form of the results.

Using grounded theory alongside a survey which contained adaptations of two validated questionnaires required an understanding of two different methodological perspectives. Arguments have been made for teams of researchers to collaborate when using mixed methods so that the strengths of each researcher can contribute to the study (Creswell & Plano Clarke, 2007; Mertens, 2005). I had to implement both methods because this was a doctoral study, This not only necessitated that I develop skills in using both methods, but it also required me to reflect on how these methods interacted as they were being implemented by a single researcher, rather than qualitative and quantitative researchers working separately.

Grounded theory is located in some handbooks of research as a qualitative approach requiring inductive reasoning (Barbour, 2008; Creswell, 2003; Mertens, 2005). The use of validated questionnaires which can be analysed using statistical procedures is a deductive approach (Creswell, 2003; Lodico et al., 2006). The use of the two different methods with their contrasting approaches by one researcher caused creative tensions to evolve even at the early stages of the research proposal. These were the role of literature, the data gathering process and in the development of hypotheses.

The role of literature

One source of tension between an inductive and a deductive approach is the place of literature in a study. When doing grounded theory, Glaser (1978) recommends reviewing the literature at the end of a study once the researcher has done an independent analysis. The purpose of this is to allow the researcher to stay close to the data, rather than viewing them through an existing lens and forcing them into preconceived codes and categories. In contrast, researchers using quantitative methods are encouraged to systematically review and develop conceptual overviews of literature at the proposal stage (Lodico et al., 2006). As I intended to

use adaptations of established instruments, a review of the instruments and their underlying constructs was necessary at the proposal stage to ensure that the instruments would be appropriate for the purpose of the study.

While these two positions seem at odds with each other, there is a case for a more moderate position of the literature in relation to grounded theory. Chamaz (2006) acknowledges that researchers may have both experiential familiarity and knowledge of the literature in the field that they propose to study using grounded theory. She describes these as “vantage points that can intensify looking at certain aspects of the empirical world but neglect others” (Chamaz, 2007, p. 17). She exhorts researchers to use these vantage points but to remain open. This view of the literature gave permission for my initial reading, allowed me to acknowledge the literature that had shaped my professional background, but laid an important challenge – to remain open to the possibilities suggested by the data.

Some writers argue that reading literature enhances the process of analysis when doing grounded theory. Wiener (2007) writes about her experience when researching as part of a team with Anselm Strauss. This team found that remaining current with the literature enabled them to widen their horizons and enrich their interviews. Lempert (2007) argues that reading of literature during the process of doing grounded theory allows a researcher to become more theoretical.

An example of this process was theorising about identity (Lantolf, 2001) and connecting it with further reading about the dilemmas of graduate unemployment in China. The code *Having a higher purpose for studying* could then be related to *Developing global identity* as some students described a future pathway in their lives of gaining New Zealand citizenship and travelling and working with international companies rather than returning to their homeland. The image of this code was also linked to the use of the term “new diaspora” (Rizvi, 2000, p.223).

“Belonging to groups” – groups could include groups to study with, groups to live with, groups to socialise with. It is also closely related to using informants. There could be sub codes of belonging to groups – these could be related to the reasons for being in the groups, living, feeling needed, socialising, improving language skills, understanding NZ, getting a job, studying, preparing for the future.

Belonging to groups creates identity – global identity, international student identity. It may be related to being Chinese, being a successful student and the ultimate success – entering the workforce. This could relate to Bai (2006) about the rising graduate unemployment in China – international identities. (Memo: Belonging to groups, January 6, 2008)

This concept of a global identity for Chinese students that extended into the future beyond their life at university influenced my decisions in deciding on my sampling frame for the final quantitative sample. This is elaborated on further in the next section on data gathering.

In the process of doing the grounded theory of my study, literature informed my analysis and my analysis suggested further reading. In response to the challenge to remain open to the data, I also tried to remain open and increase my theoretical sensitivity with my reading. This involved drawing on qualitative and quantitative research from a wide range of disciplines, rather than just focusing on the empirical research that would have arisen from keyword searches from my quantitative study.

The data gathering process

Qualitative data, initial coding and memoing influenced the sampling frame for selecting the final participants in my quantitative study. An initial version of the survey was used but the data from this were used to further refine the survey before the quantitative data from the 93 participants were collected. Interview data revealed *Developing a global identity* as a substantive process. For mainland Chinese, the trajectory of this global identity through different immigration statuses could be plotted from “Chinese international student” to “New Zealand permanent resident” to “New Zealand resident” with its associated more extended visa-free travel that enabled greater global mobility. For some students, this directly related to motivation. Disregarding the qualitative analysis would have led to sampling only the Chinese international students. Those students who had obtained permanent residency had the same background as the international students and provided a more balanced data set with regards to deep and surface motives.

Hypothesising

The survey was analysed using statistical methods that tested proposed hypotheses. The main hypotheses for the quantitative study were built into the design of that part of the study. The quantitative data were not analysed until all the data from the interviews had been collected so that I could immerse myself in the nuances of qualitative data without the influences of theories behind the quantitative instruments forcing categories.

However, the qualitative data suggested hypotheses that could be tested using the survey instrument. An example of this was when qualitative data suggested that students aimed to understand their courses although they may have varied their

study strategies. In the quantitative analysis, this led to statistically testing the correlation between the students' approaches to learning for essay questions and multiple-choice questions in order to confirm that students had a preferred approach to learning regardless of examination type. This enabled further analysis of the memorising, understanding and practising to occur in the qualitative data.

By being open to possibilities, the qualitative data enhanced the analysis of the quantitative data and added to the process of theory building.

Abduction

I have argued that this is a mixed methods study with qualitative methods being dominant. These two methods have been drawn together by the process of abduction. Abduction is defined as:

A type of reasoning that begins by examining the data and after scrutiny of these data, entertains all possible explanations for the observed data and then forms hypotheses to confirm or disconfirm until the researcher arrives at the most plausible interpretation of the observed data. (Chamaz, 2006, p. 186)

Abduction has occurred in the interactions between the methods at each stage. While the two methods have very different approaches, one being hypothesis testing and one generating hypotheses, the incorporation of both methods and their integration has strengthened the process of interpretation and the production of a model to represent the relationships among the main categories as an explanation for the process under study. Byrant and Chamaz (2007, p. 2) discuss Glaser's point that all are data, both quantitative and qualitative. However, they imply that grounded theory more strongly allies with qualitative research.. In this study, the results of the quantitative analysis are also considered data, the interaction of the two methods has created abductive reasoning that is used in the interpretation of the data.

In this section on the integration of the methods, I have attempted to respond to the challenge that Bazeley (2009) gives when she discusses integration as the heart of mixed methods research. I have suggested that being open to interaction of the two methods strengthened the study by weaving hypotheses and data together. The qualitative methods have dominance in this study because the quantitative sample size is small and the study attempts to generate a model that assists in explaining the relationship among Chinese students' perceptions of formats of examinations and their approaches to learning, motivation and study strategies rather than testing the theory of student approaches to learning.

Validity and reliability within the mixed methods design

Mertens (2005) urges researchers to establish ways to evaluate the quality of their research in terms of its credibility and trustworthiness. Because this is a mixed methods study, standards of reliability, validity and objectivity relevant for a quantitative method need to be considered together with standards that are based on the interpretive paradigm of dependability, credibility and confirmability. In addition, Creswell and Plano Clark (2007) identify potential threats to validity of sequential designs in mixed method research.

Firstly issues connected with reliability, validity and objectivity of the quantitative data collection will be examined. This is followed by a discussion of parallel issues in the qualitative design. Finally, these issues will be considered in relation to the mixed methods design.

Quantitative issues

Reliability

Reliability refers to the consistency of the instrument and is used to evaluate unsystematic errors that can arise from within the participant, from the conditions of the administration, or from changes in the measurement instrument (Mertens, 2005). In order to give a measure of reliability, the descriptive statistics of mean and standard deviation have been calculated for each item. For each scale, a Cronbach's coefficient Alpha statistic has been calculated. Mertens (2005) indicates that an alpha ranging from 0.75 to 0.95 is acceptable and encourages researchers to discuss possible sources of error. Most items were in this range. In the adapted R-SPQ-2f (Biggs et al., 2001), the values of the Alpha coefficient ranged between 0.79 to .86 for the approaches to learning scales for 10 items and .59-.77 for the five items on the motive and strategy subscales. The adapted PALS was lower with values ranging from 0.57 for three items to 0.81 for five items. This compared to the alpha coefficients for the original PALS which ranged from .70 to .89.

In this case, possible sources of error could have arisen from two areas. One is the participants' understanding of the items. Although the items were based on an existing survey and reviewed and trialled, it is possible that misunderstandings of what was being asked could have occurred because the items were in English which is not the participants' first language. Participants may have had different individual understandings of what was meant by an essay question. In addition, some of the participants noted in correspondence after the survey that some of the items seemed repetitive. Although the whole survey did not take more than 20

minutes to complete when trialled, it had a large number of items and some participants may have found these tedious. This may have affected the accuracy and reliability of their responses.

Another possible source of error may have arisen from the different timeframes from when the first participants did the survey until the final participants completed the survey. These questions were concerned with accessing attitudes to motivation and assessment. Because the survey was administered in the period leading up to and during the examination period, there may be some variation in the way students viewed motivation and assessment. If the same survey is administered to a student in the period leading up to an examination versus during the period immediately following the examination, feelings such as anticipation or relief might blur self-reports of study habits and motivation.

Validity

Confirmatory factor analysis can provide evidence for construct validity (Mertens, 2005). While the sample in this study was too small to successfully perform confirmatory factor analysis, both of the survey instruments were based on existing, validated instruments. Hence the procedure for validating each instrument will be discussed.

In the case of the section of the survey based on PALS (2000). Midgley et al. (2000) reported that the scales were based on a framework arising from previous research (Ames, 1992; Elliot & Harachiewicz, 1996; Skaalvik, 1997, cited in Midgley et al., 2000, p. 2). Validation of the version of PALS was conducted on the subscales of personal goal structure and the classroom goal structure using confirmatory factor analysis (Middleton & Midgley, 1996) and further validation was undertaken of this version of PALS (Midgley et al., 2000).

In the case of the second part of the survey, items were based on the revised version of the R-SPQ-2f (Biggs et al., 2001), initially developed by Biggs, (1987). This version was developed by Biggs et al. (2001). The questionnaire was tested and refined with 229 Hong Kong university students and then tested on 495 undergraduate students in Hong Kong using confirmatory factor analysis and revealed "that the final version of the testing had very good psychometric properties" (Biggs et al., 2001, p. 145).

While the validation of the original instruments provides some support for the validity of the adapted questionnaires use in the survey, it is important to recognise that that

the lack of validation of the adapted questionnaires contributes to the limitations of this study. However, Professor Kember's comment supports the view that this version of the SPQ (Biggs et al., 2001) is suitable with this group of participants and supports the argument for the validity of the survey:

It is ideal for what you want. It would be better than the old version of the SPQ or instruments based on the ASI because the R-SPQ-2f was modified to take into account what has been learnt about the Chinese learner and approaches to learning in the past few years. (D. Kember, personal communication, March 9 2007)

Objectivity

Mertens (2005) states that objectivity is determined by the judgement of the person who administers, scores and interprets a test. In this case, the survey was administered from a website and this allowed a uniform means of administration. The set up of the website remained unchanged for the duration of the survey. Items were set-up in such a way as to generate ordinal data that fed directly into SPSS through an EXCEL spreadsheet. All other parts of the survey with the exception of the open-ended questions generated categories through the use of drop-down menus.

Qualitative issues

Credibility

Mertens (2005) lists means by which the credibility of qualitative research may be evaluated. The first of these is prolonged and substantial engagement with the data, the participants and the context. In this study, the qualitative data were gathered over a calendar year. The length of this period enabled cycles of data gathering to be interspersed with coding and memoing. I have sought ways of engaging with the community of Chinese students at the university through social functions and more formal structures such as the Chinese Students' Association. During this period I have paid close attention to background issues in their home countries by reading of the print and electronic media. An example of such an issue was graduate unemployment that may provide insights into the data analysis. Peer debriefing is another means listed by Mertens (2005) as a way of improving the credibility of qualitative research data. Discussions with my cultural advisors of the data strengthened the credibility of the interpretations of the data.

Confirmability

Data were stored, coded and analysed using NVivo 8. This allowed data to be easily traced through codes and categories to the original sources. The use of a case book enabled ease of access to background information about each participant and the use of the query function to sort the data and question them.

Member checking was carried out when the data were returned to the interview participants for comments. Each participant received his or her interview transcript as an attachment to an email. In my email I thanked the participants for their time and invited them to review their transcript and make any changes that they wished. I also asked further questions and checked out emerging themes with them. An example of how this was done is shown below:

Hi XXX,

Thank you for your time last week. I have written the transcript of our conversation (with a few typos too maybe!) for you to have a look at. If you do not get back to me by next Thursday, I will assume that it is okay. I was really interested in your wide definition of "achievement" and it was very helpful for me to see how study is part of your life. Your story of coming to NZ through Malaysia is rather unique and interesting too. I have one further question for you. Do you do much interacting with your friends on line or do you usually meet with them face to face (or both ways)?

I hope you are having a good week and you had a nice break over Easter.

Carolyn

(email 27/03/08)

Four of the participants continued to correspond with me during the process of data analysis.

While member checking is recommended for qualitative data (O'Neil et al., 2007), there are issues in this process that pertain to this study. Schwandt (2007) debates how member checking contributes to the confirmability of a qualitative study. He argues that member checking does not necessarily minimise researcher effects or enable the researcher to stand apart from the process of gathering the data. While I have reflected on my positionality during in the data gathering process, this issue is especially relevant during the process of member checking. My position as a lecturer in the Faculty of Education was highlighted for the participants during the process of member checking by symbols such as my staff email address and my automatic formal signature on my emails. The status which provided me access to the participants, at the same time, may have compromised the participants' responses to member checks. In addition, my discourse reflected my age, education position and language background. These are particularly relevant when the participants come from a culture where age and education give status. The action of one participant who subsequently asked me to provide feedback on one of her academic essays could be seen as evidence of positionality. However, despite the

limitations of my positionality, member checking enabled this research to be “a more participative and dialogic undertaking” (Schwandt, 2007, p. 188).

Mixed methods designs

Validity or inference quality in a mixed methods study is defined by Creswell and Plano Clark (2007) as “the ability of the researcher to draw meaningful and accurate conclusions from all the data in the study” (p. 146). They identify specific threats in the data collection and data analysis stages of triangulation studies using mixed methods. Each of these will be discussed next to evaluate triangulation validity in this study.

In the area of data collection, mixed methods researchers should consider issues relating to the population that the two types of data come from, relative sample sizes, the role of contradictory results, and the introduction of potential biases (Creswell & Plano Clark, 2007). The quantitative and qualitative samples were from the same population to reduce threats to validity. In this study, the participants in the qualitative sample were volunteers selected from those who completed the survey and so have come from the same population. Creswell and Plano Clark recommend that quantitative sample sizes are large and the qualitative sample is small in a sequential mixed methods study. In this study, the qualitative participants were selected using principles of theoretical sampling. This process enabled sampling to be progressively refined for developing the dimensions of categories as required by the principles of grounded theory. However, the qualitative data that came from the open-ended questions in the survey came from an equal number of participants. It is possible that there is potential bias through data collection techniques in the case of the survey. Participation was voluntary, and although all students within the sampling frame had the potential to participate, it is possible that those who decided to participate were motivated to do so because they held strong views. While every effort has been made to minimise potential threats to validity in the data collection process, it is necessary to be transparent about method and extent to which this has been able to be done in this study.

In the area of data analysis for sequential mixed methods studies, Creswell and Plano Clark (2007) recommend choosing significant results to follow up and address separately issues of qualitative and quantitative validity. In this study, qualitative data from the interviews were analysed to produce categories that captured significant themes. These categories and their relationships were represented in the form of a diagram. Qualitative data from the survey were transformed into quantitative data by coding and integrated into the analysis. The qualitative data from the interviews enabled terms such as “study strategies” to be constructed by the participants as they reported on their own actions.

Ethics

Ethical approval for the research was obtained from the Victoria University of Wellington Faculty of Education Ethics Committee before the study commenced. No deception was involved and informed consent was obtained from each participant. In the case of the on-line survey, the opening page was an information sheet where completion of the survey indicated consent (Appendix E). Therefore, those students who did not participate in all parts of the survey, including providing background information, were not included in the final group of participants. The survey was confidential with an option of participants providing their email addresses for feedback. All participants were allocated a code to preserve confidentiality. Some participants volunteered for interviews and those selected were given an additional information sheet. The purpose of the study was explained to them and they had the opportunity to ask questions. The participants had access to the interview questions at this stage. All participants who were interviewed signed a separate consent form. Participants were also assured that their decision to participate and the information that they provided would not affect their grades. Although I am a staff member of the university, I was not involved in teaching or assessing any of the participants nor had I had any contact with the participants as a staff member prior to commencing the study. The data were stored in a password protected file on my computer. The files on the digital recorder were deleted immediately after transcription. The cultural advisors also signed confidentiality agreements.

Chapter summary

In this chapter, I have discussed the issues that flowed from the process of identifying the beliefs that underlay the choice of methodology. A pragmatic approach allowed for mixed methods to be used although both methods are underpinned by constructivist beliefs. Within this view, both the data from the grounded theory study and the survey revealed the process of studying in New Zealand according to how this experience is seen by the Chinese students. I examined how my own life experience and that of my cultural advisors had impacted on the study. A rationale for the selection of a sequential explanatory mixed methods study was presented. Each method was then considered in detail including selection of the instruments. The processes of the grounded theory study was described and supported with extracts from memos and my research diary. The issues that arose during the integration of the methods was described. Finally, matters relating to validity, reliability and ethics were considered. This leads to the findings which are presented in the next chapter.

Chapter Four

Findings

Introduction

In this chapter, the findings from two different data sources are presented. The findings from the survey are described first since this is a sequential mixed methods design. These are in two forms. The open-ended questions from the survey have been analysed and coded for content themes and are presented as numerical data (Creswell & Plano Clarke, 2007). Data that have been generated by Likert scales in the two questionnaires, PALS and R-SPQ-2f (Biggs et al., 2001) are used to test hypotheses.

Data from the interviews are analysed using a constructivist grounded theory approach (Chamaz, 2007). Categories emerged from the sampling, coding and memoing and these categories are filled out and exemplified through discussion of quotes from the participants.

As this is a mixed methods study with an explanatory design, I integrate the data in the next chapter using the categories developed in the grounded theory analysis. This allows a core category to be identified that is central to the model that is proposed in Chapter Seven.

Survey findings

Findings from the open-ended questions from the survey

These data from open-ended questions in the survey (Appendix C) were analysed by coding the responses for content themes using NVivo 8. The four open-ended questions were:

- Why do you prefer essay or multiple-choice examinations?
- How do you study for multiple-choice examinations?
- How do you study for essay examinations?
- How did you choose your course and place of study?

Of the 93 survey participants, 79 answered one or more of the open-ended questions. The answers to these open-ended questions were brief. They were placed at the end of the survey and were formatted in small text boxes which did not invite extended answers. Some of the answers were written in text language and most of the language was informal. Creswell and Plano Clarke (2007) state that data can be integrated in a

mixed methods study by converting them from one form to another. In this case, these small segments of qualitative data were converted to quantitative data. However, these numbers have to be regarded as relative because responses from each participant in the survey could contribute to more than one code. The answers to the last question were not included as they did not relate to examination format.

In order to bring the similarities and differences in studying for multiple-choice examinations and studying for essay examinations to the fore, each examination format was analysed and the codes that were associated with it are presented with total number of segments of data in it.

Table 3: Studying for essay and multiple-choice examinations

Codes	No. of sources for essay examination	No. of sources for multiple-choice examinations
Doing extra research	28	4
Cue-seeking	20	17
Reading lecture notes	17	14
Practising	15	14
Reading the textbook	12	17
Memorising	9	12
Understanding	8	11
Studying with others	8	1
Identifying key words	6	11
Summarising	6	0
Using English as a second language	4	0
Reading over and over	3	1
Brainstorming	2	0
Relying on strategies in the examination	0	6
Just knowing or guessing	0	5
No clues about studying	0	1

Studying for multiple-choice examinations

Cue-seeking and *Reading the textbook* are the most frequently methods of studying for multiple-choice examinations. Lecture notes are also reported as a very important source of information as was *Practising* using old examination papers, *Memorising*, *Seeking deep understanding* and *Identifying key points* are all approximately similar in the reported frequency of use. *Relying on strategies in the examination* include techniques such as eliminating the most unlikely choice in the question and guessing. Guessing particularly affects the scores of the students

close to a passing grade and may push them over the pass mark (Burton, 2005). *Doing extra research* includes finding examples and getting extra information on line. One student wrote that he had “no clue” about studying for multiple-choice examinations.

Studying for essay examinations

Doing extra research is considered an important activity for preparing to write essays under examination conditions. Participants report that the extra readings had to be relevant and extensive. The readings could be recommended as part of the course or they could be sourced by the participants themselves. *Cue-seeking* is done by reviewing old examination papers to predict the questions. *Reading lecture notes* seem to be both a cue-seeking and a revision strategy. *Practising* includes writing essays or parts of essays before the examination. *Memorising* and *Understanding* are applied to examples, key points and ideas. Participants report *Studying with others*, *Identifying key words* and *Summarising* as ways of studying individually and in groups. Strategies to take into account language issues often involve organising ideas in an appropriate form. *Reading over and over* is a strategy based on repetition that could be used to memorise and to understand for Chinese students (Dahlin & Watkins, 2000). However it was not often reported here.

A comparison of studying for each type of examination

When comparing the findings from the two types of examination, the biggest difference is the perception that extra research is required for essay examinations. Course materials such as textbooks and notes are important in both situations. *Understanding* and *memorising* are both slightly more important for multiple-choice examinations, but each strategy is almost equally used in both situations. Students do not report favouring either memorisation or understanding in preparing for essay examinations or preparing for multiple-choice examinations. Students place a greater reliance on strategies, such as eliminating some answers, that they can use in the examination room for multiple-choice examinations. Six participants reported no differences in the way they prepare for the two types of examinations.

Quantitative findings from the survey questionnaires

This part of the study provides data for the first two research questions.

1. Do Chinese students' perceptions of two different examination formats impact on their approaches to learning, study strategies, motivation and achievement?
2. How do Chinese students report engaging in study strategies for two different examination formats?

Hypotheses were generated from the literature. These questions are considered under the areas of approaches to learning using the R-SPQ-2f, which is made has motives and study strategy subscales, and participants' engagement and achievement using the patterns of adaptive learning using the modified PALS. Two of the modified PALS scales are used in the analysis of the findings. They are Personal Achievement Goal Orientations and Classroom Achievement Goal Orientations. Each has three subscales. The three subscales are: Mastery Goal Orientation, Performance Approach Goal Orientation and Performance Avoidance Goal Orientation. First, the descriptive statistics in this study for each subscale of the two adapted instruments are presented. All data were analysed using SPSS 16. In this study, p levels are set at .05 for significance and all p values reported here are for two-tailed tests.

The subscales used

The first instrument used for data collection is an adaptation of PALS (Midgley et al., 2000). To counterbalance the fact that subscales of this instrument have a different number of items, average subscale scores are reported and used. (Appendix F).

Table 4: Descriptive statistics for PALS subscales

Subscale	N	M	SD	α	No of items
Personal mastery goal orientation mean	92	4.23	.64	.81	5
Performance-approach goal orientation mean	92	2.71	.83	.80	5
Performance-avoid goal orientation mean	90	2.73	.81	.72	4
Classroom mastery goal orientation mean	90	4.17	.60	.77	6
Classroom performance-approach goal orientation mean	91	3.98	.72	.57	3
Classroom performance-avoid goal orientation mean	92	3.00	.83	.80	5
Academic efficacy goal orientation	89	3.69	.67	.77	5
Family mastery goal orientation	91	3.57	.69	.28	4

Possible sources of error are discussed Chapter 3, Reliability, Quantitative issues, (p.73). The reliability of the Family mastery goal scale was very low and this scale used in this study.

The second instrument used for data collection is an adaptation of the study process questionnaire (R-SPQ-2f) (Biggs et al., 2001). This instrument is used in two scenarios,

one where students imagine that they are preparing for an essay examination and one where students imagine they are preparing for a multiple-choice examination (Appendix C). The approaches to learning scale (10 items) is made up of two subscales (5 items each), motives and strategies. Both motives and strategies have a deep and a surface scale. The minimum possible value is 10 and the maximum possible value is 50 for the total of the 10 items from the 1 to 5 Likert responses.

Table 5: Descriptive statistics for the approaches to learning subscales in the adapted R-SPQ-2f

Subscale	<i>N</i>	<i>M</i>	<i>SD</i>	α	No. of items
Deep approach for essay examinations	85	32.85	6.79	.86	10
Surface approach for essay examinations	88	29.49	6.60	.80	10
Deep approach for multiple-choice examinations	88	31.80	6.08	.81	10
Surface approach for multiple-choice examination	84	29.99	6.49	.79	10

Data are obtained from two subscales for each of the two scenarios in the adapted R-SPQ-2f (Biggs et al., 2001). These subscales were motive and strategy. The motives and strategies scales had items which related to deep or surface motives or strategies. Each of these subscales is the total of five items with the minimum and maximum possible value of 5 and 25 respectively.

Table 6: Descriptive statistics for deep and surface strategies and deep and surface motives in the adapted R-SPQ-2f (Biggs et al., 2001)

Subscale	<i>N</i>	<i>M</i>	<i>SD</i>	α	No. of items
Deep motives for essay examinations	86	16.08	3.68	.75	5
Deep strategies for essay examinations	90	16.84	3.60	.77	5
Surface motives for essay examinations	90	14.94	3.61	.67	5
Surface strategies total for essay examinations	90	14.63	3.42	.62	5
Deep motives for multiple-choice examinations	90	16.22	3.31	.69	5
Deep strategies for multiple-choice examinations	90	15.74	3.59	.77	5
Surface motives for multiple-choice examinations	85	14.65	3.37	.59	5
Surface strategies for multiple-choice examinations	89	15.28	3.50	.62	5

The alpha values of the surface motives and surface strategies scale suggested that these scales are the least reliable compared to those for the deep motives and strategies.

Approaches to learning

Approaches to learning are measured using an aggregation of the subscales of motives and study strategies on the adapted R-SPQ-2f (Biggs et al., 2001). As discussed in Chapter Two, these are a combination of learner factors and the teaching context. Assessment is part of the teaching context. Hence hypotheses were developed. These were:

There is no difference between participants' deep approaches to learning when studying for multiple-choice examinations and essay examinations.

There is no difference between participants' surface approaches to learning when studying for multiple-choice and essay examinations.

The expectation from the 3 P model (Biggs et al., 2001) is that there will be a difference in the use of the surface approach and in the deep approach when studying for different types of examinations because assessment is one of the factors in the teaching context. A two-tailed paired *t*-test shows no significant difference for the surface approach in the two scenarios. There is also no significant difference in the deep approach for the two scenarios. The results are reported in Table 7:

Table 7: A comparison of approaches to learning for essay and multiple-choice examination scenarios

	<i>Mean differences</i>	<i>sd</i>	<i>T</i>	<i>df</i>	<i>p</i>
Deep approach for essay examinations/ deep approach for multiple-choice examinations	1.02	6.01	0.13	81	0.13
Surface approach for essay examinations/ surface approach for multiple-choice examinations	-0.6	5.18	0.29	82	0.29

These results concur with Smith and Miller (2005). Using a hypothetical multiple-choice or essay examination scenario, they also found no difference in approaches to learning for Australian university students when students were engaged in multiple-choice and essay examinations. As well as having participants who spoke English as their first language, the Smith and Miller study differed because two separate groups of participants were used for the essay scenario and the multiple-choice scenario. My study uses an in-group design where the same participant reports on the two different scenarios.

The nature of the relationship among the approaches to learning (deep and surface) for the multiple-choice examination scenario and for the essay examination scenario were investigated using a scatter plot of each relationship. These indicated a linear relationship between deep approaches to learning for essay and multiple-choice formats. It also indicated a linear relationship between surface approaches to learning for essay and multiple-choice formats. A Pearson Product Moment correlation was used to indicate the degree of the linear relationship between these two variables and to check its significance.

Table 8: The relationship between approaches to learning for multiple-choice and essay scenarios

	Deep approach Essay	Surface approach Essay	Deep approach Multiple-choice	Surface approach Multiple-choice
Deep approach: essay	1.00	-.20	.60**	.02
Surface approach: essay		1.00	.01	.69**
Deep approach: multiple-choice			1.00	.08
Surface approach: multiple-choice				1.00

** $p < .01$

There is a highly significant positive correlation between the surface approach to learning for essay examinations and for multiple-choice examinations. If a student uses a high level of surface approach for essay examinations, he or she would be likely to use a high level of surface approach to multiple-choice examinations. Conversely if a student uses a high level of deep approach to essay examinations, he or she is likely to use the same approach to multiple-choice examinations. This supports the use of a preferred approach to learning.

Since the data (Table 8) indicate that students report a preferred approach, the question then arises about which of the two approaches to learning, surface or deep, is reported more frequently for multiple-choice and essay examinations. In the essay scenario, results of a paired t -test indicate a significant difference between the students' reported deep approach to learning to essay examinations and the students' surface approach to essay examinations: $t(81) = 3.06$, $p = .003$. These findings indicate that students report using the deep approach more frequently than a surface approach when preparing for essay examinations.

In the multiple-choice examination scenario, results of a paired t -test indicate a significant difference for the students' reports of deep approaches to learning and

students' reports of surface approaches to learning: $t(80) = 2.53, p = .01$. As with the essay scenario, the mean of the deep approach is significantly higher than that for the surface approach for the multiple-choice examination scenario. The use of the deep approach to learning predominates as a preferred style in Chinese students' reports of studying for both the essay and the multiple-choice examinations.

To summarise, there is no significant difference in the deep approach to learning for essay examinations and multiple-choice examinations. In addition, there is no significant difference in the surface approach to learning for essay examinations and multiple-choice examinations. On average, students report a preference for a deep approach to learning regardless of the format of the examination. This contradicts previous trends reported in the literature for western students (Entwistle & Entwistle, 1991; Scouller, 1998; Thomas & Bain, 1984) where students were more likely to report a higher surface approach when preparing for multiple-choice examinations.

Motives

The aim of this section is to explore whether reports of deep and, respectively, surface motives differ when studying for multiple-choice examinations and studying for essay examinations. Items used to gauge this are derived from the adapted R-SPQ-2f (Biggs et al., 2001) and are based on frequency of behaviours or feelings. Deep motives are represented by items relating to feeling personal satisfaction when studying, finding most topics interesting and getting a sense of excitement from study. On the other hand, surface motives are linked to desiring to do just enough work to pass, finding study uninteresting and only wanting to study things that are likely to be in the examination. Results of the paired t -test indicate that there are no difference for the two types of examinations regardless of the type of motive: $t(83) = 3.88, p=.70$, mean difference = $-.17$ for deep motives; $t(84) = .55, p=.59$ mean difference = $.81$.for surface motives.

Study strategies

The aim of this section is to explore whether reports of deep and, respectively, surface study strategies differ when studying for multiple-choice examinations and for essay examinations. Students may view differently the way knowledge is tested by multiple-choice examinations and essay examinations (Scouller, 1998). Their perceptions of how knowledge is tested may be linked to different study strategies. Students who have a deep study strategy undertake extra work to form their own conclusions, try to find out about related topics, test themselves on topics, use spare time to find out more about things that have been discussed in class, and do the

suggested readings. A surface strategy is only studying what is in course outlines, rote memorising even if there is no understanding of the topic, not going beyond what has been specifically set by the lecturers, only spending time on things that are likely to be examined, and prioritising remembering answers to likely questions.

Hence, the following hypothesis was developed and tested with paired *t*-tests to compare the means of subscales of deep strategies for essay examinations with deep strategies for multiple-choice examinations. Surface strategies for essay examinations are compared with surface strategies for multiple-choice examinations.

There will be no significant difference in the use of deep study strategies whether students are studying for multiple-choice examinations or essay examinations.

There will be no significant difference in the use of surface study strategies whether students are studying for multiple-choice examinations or essay examinations.

The results of testing the above hypotheses are presented in Table 9.

Table 9: A comparison of strategies reported for multiple-choice and essay examinations

	<i>Mean difference</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Deep strategies for essay examinations/ deep strategies for multiple-choice examinations	1.09	3.24	3.16	87	0.002
Surface strategies for essay examinations/ surface strategies for multiple-choice examinations	-0.65	3.03	2.01	87	0.048

The results of the two-tailed paired *t*-tests provide evidence to reject the first null hypothesis in the case of students' reported use of a deep strategy. Students report using more deep strategies studying for essay examinations than they do for multiple-choice examinations.

There is some evidence to support students varying their surface strategies when studying for multiple-choice or essay examinations in Table 9. They report more surface strategies for essay examinations. However, it could be noted that the *p* value is just on the point of significance: $t(87) = -2.01$, $p = .048$. A larger sample size might give a more definitive result for this subscale. For this reason, this result cannot be considered as enabling the null hypothesis to be rejected with confidence.

When the two test results are viewed together, it appears that the presence of essay examinations rather than multiple-choice examinations is linked to more use of deep

strategies but it has no effect on the use of surface strategies. Neither form of examination is may be linked to a change in a surface strategy.

Goal orientation

PALS (Midgley et al., 2000) provide a measure to investigate how students engage in academic behaviour. The items on these scales are designed to focus on “the goals as orienting frameworks within which students function rather than specific behaviours or interests that students exhibit or teachers encourage while learning” (Midgley et al., 2000, p.3). Mastery goal orientation is associated with adaptive patterns of learning. Students engage in a task because it is inherently interesting and they want to extend their mastery of the task. Mastery goal orientation contrasts with performance-approach goal orientation and performance-avoidance goal orientation where attention is focused on self. The students aim to demonstrate their competence in the former goal orientation and avoid demonstrating their incompetence in the latter. Performance-approach goals may be adaptive in a university or college setting (Harackiewicz et al., 2002).

Overall, of the total 93 participants, 28 (30.1%) preferred essays compared to 69.9% (N=65) who preferred multiple-choice questions. The following hypotheses enable the type of students’ engagement to be evaluated in terms of their preferences for essay or multiple-choice examinations.

There is no difference in mastery goal orientation between students who prefer essay examinations and students who prefer multiple-choice examinations.

There is no difference in performance approach goal orientation between students who prefer essay examinations and students who prefer multiple-choice examinations.

There is no difference in performance avoidance goal orientation between students who prefer essay examinations and students who prefer multiple-choice examinations.

These is investigated through independent sample *t*-tests. The independent variable was student preferences for multiple-choice or essay examinations. Personal achievement goal orientation, performance mastery goal orientation, performance approach goal orientation and performance-avoidance goal orientation were results were compared for students who preferred multiple-choice questions and students who preferred essay questions.

Table 10: Personal mastery goal orientation, performance approach goal orientation and performance avoidance goal orientation for students who prefer for multiple-choice examinations and essay examinations

Variable	Essay		Multiple Choice		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Personal mastery goal mean	4.21	0.66	4.23	0.64	-0.14	0.89
Personal performance approach goal	2.73	0.97	2.70	0.77	0.17	0.87
Personal performance avoidance goal mean	2.71	0.92	2.74	0.77	-0.13	0.89

An examination of findings in Table 10 reveals that data does not provide support for rejecting any of the three hypotheses. Students preferences for multiple-choice or essay formats do not seem to indicate any difference in a personal focus on the task or a focus on self.

Students' perceptions of the classroom goal structure indicate engagement in study. Classroom mastery goal structure items measure the students' perceptions that the purpose of engaging in a course of study is to develop academic competence. Classroom-approach goal orientation indicates a perception that engaging in academic work is to demonstrate competence, and performance-avoidance goal orientation indicates that students see the purpose of engaging in academic work in a course of study as a way of avoiding demonstrating incompetence. This could be linked to the concept of face for Chinese students. Hence, an independent *t*-test using students' preferences for multiple-choice and essay examinations to test the following hypotheses:

There is no significant difference in the classroom mastery goal orientations of students who prefer essay examinations compared to those who prefer multiple-choice examinations.

There is no significant difference in the classroom performance-approach goal orientations of students who prefer essay examinations compared to those who prefer multiple-choice examinations.

There is no significant difference in the classroom performance-avoidance orientations of students who prefer essay examinations compared to those who prefer multiple-choice examinations.

Table 11: Classroom mastery goal orientation, performance-approach goal orientation and performance avoidance goal orientation for students who prefer for multiple-choice examinations and essay examinations

Variable	Essay		Multiple Choice		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Classroom mastery goal mean	4.15	0.57	4.17	0.62	-0.13	0.90
Classroom performance approach goal	3.83	0.73	4.05	0.71	-1.33	0.19
Classroom performance avoidance goal mean	2.93	0.79	3.03	0.84	-0.51	0.61

An examination of findings in Table 11 reveals that data does not provide support for rejecting any of the three hypotheses. Students preferences for multiple-choice or essay formats do not seem to indicate any difference in a classroom focus on the task or a focus on self.

Achievement

Students self-reported their own achievement. In the survey, they were asked to self-report into four groups, *Mostly As*, *Mostly Bs*, *Mostly Cs*, *Mostly below C*. Since there were only four students reporting *Mostly As* and one student reporting *Mostly below Cs*, it was more practical for analysis to collapse the groups into two new groups, *Mostly Bs and above*, and *Mostly Cs and below*. *Achievement* could then be used as a variable to divide the students into two main groups according to their self-reported achievement. This enabled the following hypothesis to be developed:

There is no significant difference between high achieving students and lower achieving students in their deep motives when studying for essay examinations and multiple-choice examinations.

There is no significant difference between high achieving students and lower achieving students in their surface motives when studying for essay examinations and multiple-choice examinations.

Independent samples *t*-tests enabled the differences in students who reported higher and lower levels of achievement to be examined for their deep and surface motives.

Table 12: A comparison of the motives of the students who reported different levels of achievement

Variable	Mostly B and above		Mostly C and below		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Deep motives for essay exams	16.13	3.69	15.92	3.90	0.24	0.81
Surface motives for essay exams	14.74	3.85	15.41	3.09	-0.79	0.43
Deep motives for multiple choice	15.90	3.24	16.92	3.55	-1.31	0.91
Surface motives for multiple choice	14.63	3.49	14.72	3.21	-0.11	0.91

There is no significant difference between the means of the students who report higher achievement and the means of the students who report lower achievement for surface or for deep motives when studying for essay examinations. This also applies for multiple-choice examinations. The null hypotheses can not be rejected.

Independent sample *t*-tests are also used to examine the following hypotheses which links self-reports of achievement with types of strategies when studying for essay examinations and multiple-choice examinations:

There will be no significant difference between students who report higher achievement and students who report lower achievement in their use of deep strategies when studying for essay examinations and multiple-choice examinations.

There will be no significant difference between students who report higher achievement and students who report lower achievement in their use of surface strategies when studying for essay examinations and multiple-choice examinations.

Table 13: A comparison of the strategies of students who reported different levels of achievement

Variable	Mostly B and above		Mostly C and below		<i>t</i>	<i>p</i>
	M	SD	M	SD		
Deep strategies for essay exams	17.08	3.63	16.52	3.54	0.66	0.51
Surface strategies for essay exams	14.13	3.56	15.88	2.76	-2.25	0.03
Deep strategies for multiple choice	15.68	3.51	15.77	3.89	-0.11	0.91
Surface strategies for multiple choice	15.02	3.52	16.04	3.39	-1.23	0.22

There is no significant difference between the means of the students who report higher achievement and the means of the students who report lower achievement

for surface or for deep motives when studying for multiple-choice examinations. The null hypothesis can not be rejected.

For essay examinations, there is no evidence of a relationship between the students reported levels of achievement and deep strategies, but there is a significant difference between the use of surface strategies for essay examinations between the the students who report *Mostly B and above* group and those who report *Mostly Cs and below*. Students in the *Mostly C or below* group report more use of surface strategies when preparing for essay examinations than those students in the *B and above* group. This means that students in the *C and below* group when preparing for an essay examination are more likely to do only what is specified by lecturers and course outlines, to learn by heart without necessarily understanding, to try to focus only on the material that will be examined, and to rely on brief overviews rather than in-depth understanding.

Summary of quantitative findings

The quantitative findings aim to answer the following question:

- Do Chinese students' perceptions of two different examination formats impact on their approaches to learning, study strategies, motivation and achievement?

The quantitative findings do not support students using a different approach to learning depending on whether they are studying for essay examinations or multiple-choice examinations. Participants in this study are more likely to adopt a deep approach rather than a surface approach to both multiple-choice and essay examinations. However, the majority of the participants prefer multiple-choice examinations. This contrasts with the conclusions drawn by Struyven et al. (2005) who indicated that students who prefer multiple-choice examinations are likely to adopt a surface approach to learning and vice versa. There is also no support for students using a different level of deep and surface motives depending on the kind of examination. Students report using more deep strategies when they were studying for essay examinations than multiple-choice examinations. Overall there is no significant difference in their surface strategies in these two scenarios. Students' preferences for either type of examination questions make no difference to their engagement as measured by the adapted PALS, either at an individual or classroom level. Students who reported lower achievement are more likely to use more surface strategies for essay examinations but there is no difference in their reported use of deep strategies in the two scenarios.

The quantitative data also informed the second question.

- How do Chinese students report engaging in study strategies for two different examination formats?

The impact of examination question type is evident in study strategies for Chinese students in essay examinations. A greater use of deep strategies is reported for the essay examination scenario for the whole sample. When students who report higher achievement are compared to those who report lower achievement, the students in the *Mostly Cs and below* report a greater use of surface strategies for essay examinations than those who report *Mostly Bs and above* as their grades.

The qualitative data from interviews

During the process of sampling and analysis of the interviews five main categories emerged from the data with dimensions (See Table 14). The challenge was deciding which category could be raised to a theoretical concept. Chamaz (2006) tells researchers to raise categories “because of their theoretical reach, incisiveness, generic power and their relationship to other categories” (p.139). Each category was reviewed with these criteria in mind. The incisiveness of each category lies in its properties and its dimensions.

These categories and their relationships are explored further in the next chapter when the data from all the survey and the interviews are integrated and analysed. This analysis was not a linear process. The rationale, processes and challenges of data integration in this mixed methods study were discussed through a process of critical reflection in Chapter Three.

Table 14: Categories arising from the qualitative data

Categories	Dimensions
Calculating	Low ability – high ability to recognise and use cues to strategically prioritise learning
Developing discipline-specific discourse competence in English	Weak skills – strong skills in developing discipline-specific discourse competence in English
Engaging in study strategies	Narrow range of strategies – wide range of strategies matched with perceived task demands
Being motivated to achieve success	Externally motivated – motivated by interest in the task
Memorisation, practising and understanding	Rote memorisation without understanding – understanding

The data reveal how Chinese students see the difference in task demands of examinations under the two different conditions, multiple-choice questions and essay questions. This is central to how they will prepare for these examinations in terms of their study and their motives. Categories within this core story are described below. Each category has dimensions within which the two examination types are compared. Example quotations from the interview data illustrate how the participants see the category. Underlying each category is the central issue of how Chinese students engage in learning.

Calculating

Students have expectations about different kinds of assessment and they work to align their expectations with the task demands of examinations through a process of cue-seeking. *Calculating* is a process of students strategically predicting which questions will be in an examination, focusing their learning and selecting the study strategies that they would consider appropriate. Students see both kinds of examination questions along a continuum of unpredictable to highly predictable. Their effectiveness at cue-seeking enables them to place examination tasks along the continuum. Students who seem to be more strategic and feel more positive about their predictions also seem more confident.

Multiple-choice examination questions are likely to be seen as highly predictable and cue-seeking is seen as a way of practising. For both multiple-choice and essay questions, cue-seeking from old examination papers increases the students' confidence. Through opportunities to prepare and practise, students who feel they are good at *Calculating* have a focus for their efforts, as this student states:

Only some points are very important, because for 100 level multiple-choice, they choose randomly from their favourite. When I was doing a paper last year, 30% of the multiple-choice questions were the same as the past two years so I practised old exam questions.

Students' preferences for multiple-choice or essay examinations are influenced by how effective they feel they can be in *Calculating*, to seek cues. One student does not use cue-seeking from old examination papers to narrow the range of content that would be examined when preparing for multiple-choice questions. As a result, this student is not able to practise specific multiple-choice questions. Selective memorisation of definitions and concepts is used instead of practice. By using *Calculating* from previous experience in other courses, this participant perceives multiple-choice questions as testing definitions and factual concepts that can be learned through memorisation:

For multiple-choices because there is no one area you have to go through the whole text book and the whole definitions, concepts you have to memorise them. I don't think we can see what the choices are.

On the other hand, this same student is very successful and systematic in cue-seeking for essay examinations. She uses clues from the course, from staff and from old exam papers:

So when I am preparing for final exams, my exams are based on essay questions so I will go to the library or maybe on line to get the previous year. Yep, the examination paper ... they are not the same but they are pretty similar style, like the sections and things It is really, really helpful to let you guess and then guess, like you know heaps, like the professor is talking heaps and heaps of topics during the whole trimester but we just have four questions during the examination so you guess which four are more important.

She prefers essay examinations and in her comment that follows, she speaks about preparing six topics for a final essay examination. There is an indication that she is not cue-seeking as a surface strategy because she uses her study to make connections within and between the topics. She is seeking an integrated understanding of the course:

Even though I think I just do 6 topics almost the whole one it is how to integrate them all together. The examination is not just about one thing. It is about the whole thing. That is what I do.

The example of the student above is in contrast with a student who prefers multiple-choice examinations. She feels a very low sense of self-efficacy for essay examinations and this affects her motives to study:

I do not think you should study for essays. You cannot study because you do not know the topic. How can you study for that?

The reverse is true when she was doing multiple-choice examinations and she feels motivated to do her best:

But multiple-choice I think is better, because if you read the previous exam paper you find I think, at least 40% of the questions are the same or maybe similar. If you do them right, you can do your best in the exam.

Calculating can impact on students' confidence, motives and selection of study strategies.

When *Calculating* is applied to essay examinations, students perceive that the stakes are high because each question carries more marks than individual multiple-choice questions. Students have high expectations of staff and are willing to make a considerable effort to enhance their understanding of questions:

[When I am preparing for an essay examination] I will borrow a book from the library and photocopy it. Photocopy those chapters which the exam will test [and] find out the questions that I encountered and I cannot understand and if I cannot find the answer I will go talk to the lecturer or tutor. I will chase them or harass them until they give me an answer.

This cue-seeking aspect of *Calculating* may have come from the students' previous background in highly competitive educational systems (Jiang & Smith, 2009; Yu & Wang, 2009). In this environment, assessment is often norm referenced as it serves a gate-keeping role, for example, determining places in ranked universities (Bai, 2006). Cue-seeking can be seen by some western academics as inappropriate if it is interpreted as a desire to study only what is in the examination (Volet, 1999).

Calculating is a strategic response that enables students to refine their perceptions of the task demands of different kinds of assessment requirements in a western, cultural setting. When students do not feel able to engage in calculating effectively, their motives are decreased. Cue-seeking is central as it is a process of working out the risk of selectively studying some parts of the course. When students see *Calculating* as effective, they perceive the task demands of a type of examination question as more manageable. This enables them to match their study strategies to the perceived task demands. In the essay questions, they can narrow down the areas to study and, in the case of multiple-choice questions, they can have opportunities for practice and also get feedback if the answers were provided. For both types of examination, students can deepen their understanding within specific areas of the course. Because multiple-choice questions are seen as highly predictable, students can practise. Students are able to attune their perceptions more closely to the actual task demands of the questions in terms of the use of discipline-specific language and study strategies. If the multiple-choice and the essay questions are designed to test understanding of a course, practising doing previous examination questions will bring about deeper understanding of the course. In this way, students can use previous examination questions as a form of formative assessment for learning. When students see themselves as effective in *Calculating* for one or other type of examination, it has an effect on their preference for that type of examination and their motives for study.

Developing discipline-specific discourse competence in English

Each discipline has its own form of language that represents a way of thinking within a discipline. This discipline-specific discourse is challenging for students especially for those who do not have English as their first language (Borland & Pearce, 2002). In the case of examinations, students are not only learning in this discipline-specific language but also their understanding and knowledge is also being assessed through this language. Students have different perceptions of the language task demands for different formats of examination. Students locate their perceptions of

the language demands of the different format of examinations along a continuum from easy to difficult.

Some students see multiple-choice examinations as easy and only requiring low level strategies such as guessing:

If we...multiple-choice questions if you do not know the answer then just pick one.

But for multiple-choice, it is just more silly questions. [Multiple-choice questions are] less important questions so I can just guess some of that by just common sense some of the time. Because in Y [subject] they won't ask you about maths stuff so you can just use your sense to answer it.

This process of selecting the best answer from a range of possibilities with a chance of guessing the right answer serves to lower anxiety about discipline-specific discourse competence. Since there is no need to compose an answer, students feel less pressured with time limits:

For the multiple-choice examinations, a similar time is fine. Even though you do not answer, you can just guess to take. You can take the time very shortly.

This is similar to findings from Zeidner (1987) who reported that school students working in their home language generally felt more positive about multiple-choice examinations than essay examinations in terms of their perceived difficulty, lower anxiety and higher expectation of success.

Some students feel that multiple-choice examinations are difficult as the process of deciding among the choices, especially with skilful distracters, could be demanding. These students recognise that complex multiple-choice questions can require inferential reading and deep understanding. The ability to make inferences is dependent on both background knowledge and competence in the language being used (Johnson & Ngor, 1996):

When you have some choices sometimes it means harder. You can choose a, b, c., d, and it looks similar. It looks all right, all correct, but you have to choose the best one. That is very tricky.

But multiple-choice is easy to get marks but I don't know. Sometimes I get confused, especially I always get wrong, like, there is four options. I can get rid of two of them and then they probably left A and D then the right answer is A. I don't know I always get it wrong. I always choose D, always get stuck on the last two answers. So yeah, most times I get wrong so I hate multiple-choice.

Cue-seeking from previous examination papers provides some students with experience of complex multiple-choice questions that require a deep understanding of the subject and an ability to comprehend the discipline-specific language:

Then in her paper she designed multiple-choice questions. Those are really tricky. Usually this kind of long question (about ¼ page) followed by just one or two multiple-choice questions and you have to choose one between them.

it is actually not a multiple-choice question – it is a kind of calculation. And sometimes they will give you some trap about it, yeah. You need to consider carefully because Some words, a long sentence. Probably the understanding is a little bit hard.

When students encounter these complex multiple-choice questions, they point out that time to understand them is essential:

A lot of reading like telling a story and then you have to make a choice and the time is limited only 30 minutes so I found it really hard to study her paper.

While some students see multiple-choice examinations as easy, others are aware that this kind of examination requires an understanding of the nuances of discipline-specific discourse.

Some students feel that they are disadvantaged by having to use discipline-specific discourse accurately in essay examinations when English is their second language. They see the writing of essays under examination conditions as difficult. This student expresses how she feels disadvantaged because she cannot represent her understanding of the subject in writing:

We understand and when we read it we know what is going on and what does it exactly mean but, when we write by ourselves, it gets harder.

The impact of demonstrating understanding in a second language is evident in an examination situation where time can be a limiting factor. The students explain that writing takes more time for them than it would for students who have English as a first language:

If I don't, know the answer then I spend a lot of time to write it.

If I am doing an exam, during exam time, I have to write lots of essay or, you know, time is so intense so I would always take an hour.

In addition to needing more time to construct essays, students feel disadvantaged in presenting logical arguments, the rhetoric of an essay. This is very different from the previous educational experience of Chinese students:

In China I mean that ...in China when we write essay we can copy phrases directly but here we need to reference and it is a different style. You need to have your own opinion. And in China teachers don't care about student if they have their own opinion, they just the essay to be the same, but here they let us have different opinions. I think better here.

Not only was the style of the essay unfamiliar, but also the structure of the essay could be confusing. The requirements of an academic essay in a specific discipline are opaque for some students. The following student does not have confidence to

build her argument in an appropriate way. On top of this, she perceives the marking of essay questions as subjective compared to multiple-choice questions:

But when you write an essay sometimes you have to do something to fit the lecturers' tastes. If the lecturer likes your idea maybe you can get higher marks but if the lecturer thinks your idea is not logical or he does not like this point or this view, maybe you can get a C. More than multiple-choice.... When the lecturer marks the multiple-choice, they have a clearly standard. A is A. B is B.

On the other hand, essay questions give confident students a chance to express their understanding and to show their knowledge and skills:

But if you write an essay question I think the exam marker will pick out the points you got.

One student, who reported her grades as a mostly B or above, prefers essay examinations because she is able to demonstrate her knowledge:

I think [that multiple-choice questions are not really fairer] because essay questions, you can show your ideas about the questions.

Birenbaum and Feldman (1998) found that students who were confident in their academic ability preferred essay examinations. In this case, this confidence extends to writing, using discipline-specific academic language to show understanding.

Developing discipline-specific discourse competence in English contributes to the students' perceptions of the two types of examination. Some participants see multiple-choice as easier because these questions do not require the students to generate answers in writing. However, students who have encountered the kind of multiple-choice questions that use language to test deep understanding are more likely to see multiple-choice examinations as difficult. Mastery of aspects of discipline-specific discourse such as the genre of an argument also affects the time needed to compose essays and the perception of fairness in their use as an examination format. Both multiple-choice and essay examinations are considered easy or difficult by different participants, depending on how students see their competence in using discipline-specific language for reading and for writing. Strengths in discipline-specific language competence enable students to discern what language skills are required and these also affect their perceptions of the complexity of the question.

Engaging in study strategies

Students' perceptions of the different types of examination determine how they match resources and study activities in the process of *Using study strategies*. At the narrow end of the continuum, participants use a limited range of resources and activities. The converse happens at the wide-ranging end of the continuum.

Resources include notes, textbooks and additional readings while activities include working together with peers in group study and specific strategies such as mind-mapping.

The students' perceptions of the two types of examinations determine how they source resources for study. A narrower range of resources is usually deemed necessary when studying for multiple-choice examinations. These are often confined to lecture notes and the textbook:

[For multiple-choice examinations] I wouldn't go to data bases and search for journals and stuff.

However, the students' perceptions of doing multiple-choice examinations change as they progress through university. Participants see the demands of examinations during their third year of study as more challenging and needing more resources to study for them:

It depends on the level. If you do it just say 100 level paper, just read the lecture notes. I am 80% sure, I can pass it and then get a good grade and then to do like 300 level paper I would read the whole books.

When preparing for essay examinations participants recognise the need to have a variety of resources. These resources can be people, paper-based resources and internet resources:

I will to go to the library and spend [time doing] extra readings for this kind of topic.

Some students have specific study strategies that involve deep processing as they organised the relationships amongst ideas:

I like to organise things like a whole map which topic and how many things from this topic and I can remember it easily like this way. And sometimes I prefer to give some exam topics for each theory I can understand it better for it.

Peers are also seen as an important resource when studying for examinations. Group study is commonly reported, especially in the case of essay examinations where cue-seeking enables the identification of topics that could be used to focus discussions:

Most people make their own notes. We summarise some problems for papers or sometimes we also joint map for everyone to understand it. Sometimes we divide the work for each person. You prepare for this topic and finally we can get together and share the information. We reduce our work and get more.

While group study is seen as a way of reducing the workload by some when preparing for examinations, that is not the only advantage. It allows students to

appreciate multiple perspectives and monitor their own understanding by measuring it against the understanding of others:

[Group study] helps me to review the lectures and the literature and to check if I made a mistake here and sometimes I hear the different point of views on the same topic. That helps me extend what I can write about.

It was a good thing like three of us you get to sit together and share the ideas. Just focus on one question. It is just like you, yourself, cannot think of the whole thing. You probably miss something and your friend will remind you.

When students work in groups, their first preference is to work with other Chinese students. They find students who speak English as their first language difficult to understand in a group situation. They also feel that they share similar background knowledge to other Chinese students which enables them to interact more effectively. This is supported by Wright and Lander (2003) who found that South East Asian students who were predominantly Chinese were significantly more inhibited in their interactions when they were placed in bi-ethnic groups compared to mono-ethnic groups when studying at an Australian university. In my study, some groups specifically report using both Chinese and English:

English and Chinese because some concepts you cannot translate into Chinese and even if you translate you cannot write Chinese in the exam so it is better to remember the concepts. But other topics we will talk about in Chinese.

So hard to join a Kiwi discussion group. With Chinese we speak the same language and you know ... we just understand each other more. I think a Chinese study group is better.

When students are able to use their strongest language to discuss academic concepts this may deepen understanding (Ufagafa Lameta-Tufuga, 1994). This could be extended to reading in English and then, taking notes in Chinese (Yu, 2008).

The group activity does not replace individual activity. This participant talks about the need for a personal integrated knowledge which came from individual study:

We want to study together and discuss our issues rather than just study individually but we also have our own private time to look though the whole thing.

Participants indicate that it is an individual task and responsibility to seek understanding. This participant talks about memorising deeply as a way of studying:

One thing is if you get the information from others or ideas from others you can't really study something or memorise it deeply. You have to dig it out and study by yourself.

For multiple-choice examinations, group study is seen as a way of engaging in formative assessment. By practising the multiple-choice questions together students

can compare and discuss answers. This allows them to get feedback on their ability to answer the examination questions:

I think about 20% of them [previous multiple-choice examination papers] have answers but for the rest you can only talk with the others, Maybe ask. Like three people sit together and two people think A is right. And you think B is right but you get A.

While multiple-choice examinations seem to require a narrower range of resources, both types of examination engage the students in multiple ways of understanding and remembering the material. Students hone their perceptions of task demands by using course materials and peer feedback. This enables them to review course materials and to get a collective understanding of the task demands. In the process of group study, negotiation of different perceptions of knowledge in English and Chinese brings about further understanding that is then consolidated individually. Each student's perception of the two types of assessment leads to engaging study strategies that the student hopes will be effective.

Being motivated to achieve success

Students find the lack of an explicitly competitive environment demotivating. They look for ways to compare themselves to others and use the grades given in assessments to do this:

And they always have marks back, like specific marks. And not like here where they have student ID that kind of thing, we see in one class, we always have class. In one class they will normally know each other's marks so they are like "You got that one . I only go that one." You have got the motivation to study and try hard and compete with the top one but here it is kind of we only know friends around us and what marks they got so if they got a lower mark than you you are kind of happy but once they get higher marks that you I get kind of "Oh No. I should get higher marks than his or her.

The stimulating effect of a competitive environment may have been brought from previous educational experiences where national examinations were competitive and high stakes (Chan, 1999; Watkins, 2007; Yan & Chow, 2002). Underlying statements about motives is an attribution of success to effort, not to innate ability.

This student is talking about her desire to improve her grades:

If I got the chance I would like to talk to the people who always get A grade, I just want to learn from them. How come they get better grade than me? Was the preparation problem, was the study problem or was my language problem? That makes the differences, so I want to find out about that.

When she is reflecting on what might be the barriers to her achievement, she is thinking about examination preparation, study strategies and language. She does not consider her natural aptitude for this subject would make any difference to her grades.

This is a frequent finding among studies of Chinese students (Biggs, 1996; Salili, 1996; Watkins, 2000). The participants show an awareness of their own ability to persist with study and to focus on examination success. Another student compares herself as a Chinese student to the domestic students:

Chinese students, they just care about essays and how to write them better or give answers for questions. That is normally what they do. The study habits are different because, in China, if you graduate from high school, you get used to the way of remembering things. How to read and write and, maybe, like study for the exam. You can show what you like or what you really understand for the meanings but you have to work for the exams.

Where there is a large investment in the education of these students by their families, students may feel a big obligation to show dividends in the form of passing grades. This is especially true of international students who may be paying up to six times more fees than New Zealand permanent residents:

Passing is important. If you pass you will not study it again so you will not spend money... Yeah Maybe they [parents] work for money for their whole life to support you.

Chinese students they do not live for themselves they live for the family. I think Kiwi students, they just live for themselves. The family is happy, but in China, if you don't study hard or if you cannot get a good job, your parents got really sad for you.

This investment is both financial and connected to family status, especially for students who are from mainland China and are the sole child in the family. Watkins (2000) saw this as a form of social motivation for Chinese learners, involving significant others, peers and the family.

As well as this focus on examinations, students talk about understanding and applications of their learning in their future careers:

Here you really can understand the knowledge and get some skills for your future for your job.

This focus on understanding is even more evident when this student teacher talks about critically analysing practice as it applied within the profession of teaching:

Achievement does not necessarily [mean] to get higher grades. You can get higher grades and you might not fully understand well enough of what you had learnt as you think.. Achievement is you can apply what you had learnt in class to practice and compare the differences and find out the reasons. This course makes me think, reflect and choose my way to interact as a teacher and a learner.

Thus, she speaks about how understanding would transform her as a learner and as a future professional in the field of teaching.

The pathways that could be opened up for the students as they developed global identities serve as longer-term motivation. A job in New Zealand is often seen as a stepping stone on that pathway:

My plans are to find a job here, if it is possible. Sometimes it is hard for the international students to find a job, to get some more experience and, probably I can go another country to experience more skills. Or do my masters, but finally I want to go back to China.

It is kind of like for us, for international students, it is more important that we can, like, our kind of target is we always want to graduate and after graduation, find a job here. That's kind of, like our main career or future thing... And probably a few years later I will move to my desired work, to travel around the world so after a few years I will look for a job that I can travel around. Especially Asian countries because I really like the culture there say Japan, Korea that kind of culture I am more interested in.

Some students are optimistic that their courses will be useful as a means of reaching their goal of employment:

Firstly, accounting because I know if you do accounting at university, maybe you can get a job easily because I know NZ needs accountants and IT people.

To be honest I want to go to a European country like Spain because I am doing tourism.

Another student who was interviewed about the time of the Olympic Games in China expresses his motivation with national pride in terms of future achievements and power:

Achievement means good social position. I can do what I want. I have power and lots of money and I can help my country for my countryman. Like I donated money for the earthquake. I think that is achievement - to do something for my country.

Many students undertake part-time work, hoping that it would make them more employable and, in some cases, improve their language skills:

The reason why I work in the hotel is because I was worried that I couldn't find a job here, and the reason it is hard to find a job is because I don't have experience, that's why I work in a hotel hopefully they would offer me a job.

However, for some students, the experience of seeking and obtaining a part-time job is demotivating. They find that they are mostly only able to work in low-skilled jobs such as waiting on tables in Asian restaurants and serving in supermarkets. These positions do little to develop the language skills that they need to succeed academically and, at the same time, can distract them from their studies.

Some students are very self-aware and are able to articulate being motivated by a sense of satisfaction as they grapple with problems, both academic and in other areas of their life:

It is good to get frustrated and things sorted. Experience a different place – you will become a more knowledgeable and experienced person.

I get quite driven some times. That's my main focus, I suppose, knowledge, learning more things, knowing more things, exploring things. That's one of the most interesting things on the face of the planet.

The comments from these students indicate that they are motivated by a view that knowledge was transformative (Marton et al., 1993) and this was shaping their identities as they experienced life and education in New Zealand.

Students who are studying in areas other than commerce express more interest in course content rather than in the utility of the content in terms of a career. They express less concern about family obligations and more concern with their own personal development. However, findings may be directly interlinked to the personal and social characteristics of these students such as being a mature aged student, or relationships with parents:

I was pretty free to make my own decision but my dad is not very happy with the fact that I want to travel. After I have finished this degree it is not going to take me anywhere. I take these papers but it is not going to take me anywhere. After I finish this I am just going to travel and write and do theatre and it is never going to earn me money and I am never going to settle down very well am I?

For these students, family bonds do not play a role in motivating them to achieve. Motivation comes from a desire for personal fulfilment. These students express a preference for essay examinations.

Students are motivated to achieve academically by family pride, financial obligations, developing an understanding of knowledge that could be used in future careers and having global opportunities. While these overarching aspects of motivation support the learning of the participants in the study, the findings reveal that some multiple-choice examinations may decrease the motivation to study for some participants who just wanted to pass. Their perception of multiple-choice examinations is that they are easy and do not test understanding:

I just think that it is sort of too easy you know because the answer is, you know, in one of the choices and I don't think that's ... well, you don't really have to push it to understand the concept. You can always look and see which one seems the most fitted to the question and pick it.

[Multiple-choice] that makes me much easier to pass the course right so I just do less, just do enough to pass. That is my way of studying in university or college.

In contrast, the participant below, who has a very clear focus on understanding the course content, sees an essay examination as a way of allowing him to demonstrate that understanding to his lecturers and to himself. He is motivated by the

assessment process and sees it as relevant to the course. Not only does he see it as an assessment but also an opportunity to learn:

From that, the lecturer ...or me, I can know how much I learnt from the course because sometimes multiple-choice cannot do that. Yes, it is true from essay questions you have a chance to know how well you have done in the course.

Chinese students are motivated by the challenge of deep study strategies and understanding together with the need to obtain knowledge and skills for careers and life styles. When participants perceive a type of examination question such as multiple-choice as easy and requiring surface strategies, they are not motivated to study for understanding. Essay examinations are more likely to be perceived as requiring deep strategies and motivate participants to engage in study strategies that bring about understanding that will be useful in the course and in future careers. *Being motivated for academic success* is fuelled by the belief that efforts will bring success and repetition, and memorising and understanding are forms of effort used by Chinese students (Dahlin & Watkins, 2000). This success is a duty to a family group and is shared by them for many students. Some individuals have developed greater independence and view success as gaining person satisfaction from studying rather than relating it to career opportunities. The financial commitment and sacrifices that families make to send their child to New Zealand may deepen interdependence as a motive for being successful. At the same time, students endeavour to mitigate this interdependence by becoming more independent financially by working part time and with the promise of a well paid, high status career.

Memorising, practising and understanding

Students make distinctions between types and purposes of memorisation for both essay and multiple-choice examinations. Rote memorisation is a skill developed in the students' previous education but it is not the preferred way of learning in this educational context:

I don't like remembering things but you have to do that if you are in China. It is just a habit. Things you study from primers, you study like that.

In China, do the questions and answers over and all over again. Just try to memorise it but in here you could really learn something.

Educational experience in New Zealand in particular disciplines also may require memorisation. This student studied at a New Zealand high school for three years where she saw that the skills of memorisation were necessary to succeed in Year 13 chemistry:

I failed 7th form chemistry because it bored me. I don't know why I took it. It was interesting enough but after a while it was just memorising all these things. It doesn't require much thinking creatively.

However, memorisation is seen as useful for specific purposes in learning in a western education system. It is valued as a useful aid to language learning and transition to understanding:

We have to remember. Maybe the lecturer just talk, talk, talk and you have to remember which vocabulary you do not understand so you have to go home and check the meaning.

Memorisation plays a part for many students in studying for examinations by providing a framework for answering questions, especially in essay examinations. It does not preclude understanding, but it may be done in response to the examination situation:

I can't memorise essay. I must maybe memorise some examples.

For economics I just have to remember model theories, model theories in textbook so I can use them in the exam.

These comments show that this kind of memorisation is very different from the rote memorisation used by students in their secondary school education in their home countries. Memorisation is being used to create prompts in examination situations:

I try to memorise the frame like in human resources what topics gong to be talked about and ... by memorise I mean you don't understand it you just keep it in your head. I will get a brief idea of what is going on in my head In a way that is memory but different from what I did in Taiwan.

Memorising for both multiple-choice and essay examinations seems to have come from practising, leading to understanding:

I also have to remember the graph, Economic graphs – that is very hard as well but I just get used to it because I have seen too much.

Actually it is not a kind of memory it is a kind of practice. Do lots and lots of practice so that is why, after a long time, it is very I mean very ... you can memory it definitely because you have done lots of questions and practice already ...something like nature. You know you get familiar with your body from your thinking, you see the question, you know how should I do it. Even sometimes you see multiple-choice, you read the question, you know the answer already. Something is already in your mind.

[When studying by taking notes from a lot of books] I write them on the piece of paper, so just keep the repetition again and again to memorise them.

For other students, understanding precedes memorisation and makes memorisation easier. Both of these students below use mind-maps to create understanding and then memorise the mind-maps as prompts for the examination questions:

My host sister, she taught me some good ways of remembering things by using mind maps and colour them in different ways and that's really helpful. It helps me a lot. It helps me understand and easier to find the ideas rather than just line by line.

Just like a map. I like to organise things like a whole map which topic and how many things from this topic and I can remember it easily like this way. And sometimes I prefer to give some exam topics for each theory. I can understand it better for it.

By creating a mind-map, they transform the knowledge and make it their own, rather than memorising summary notes provided by the teacher or the text book. Mind-mapping or concept-mapping requires students to consider the relationships among ideas and enhances learning performance (Chiou, 2009; Lim, Lee & Grabowski, 2009). Memorising a mind map could be an example of memorisation of understanding, identified by Meyer (2000).

Memorising and understanding are linked to motivation. The two quotations below illustrate that these students see memorisation as a surface strategy associated with surface motives and it is not their preferred option. In the first quotation, the student implies that she may not get good grades in her examination with memorisation only, because she will not be able to apply what she knows in a new situation in the examination. The second student is looking beyond her tertiary education to the future and sees that memorisation will not let her apply knowledge in a future career:

Another thing is I think memory is more difficult. You spend hours to remember all that but maybe you spend only 30 minutes to understand it. Yeah, that is what I think and another thing is for me if I remember it instead of understand it in my heart I will always know that I do not understand, always afraid what happens if the lecturer asks me the other way around. So it (remembering) is not studying – it's like I just want to pass.

Here you really can understand the knowledge and get some skills for your future for your job.

Memorisation, practising and understanding are intimately linked together. Students' motivation and their perceptions of what is required in an examination setting determine their use of these strategies.

Summary of qualitative findings

The qualitative findings provide data to inform the answers to the following two research questions:

- How do Chinese students report engaging in study strategies for two different examination formats?
- How do Chinese students' perceptions of the requirements for language use in two different examination formats affect their study strategies?

The qualitative findings show that some Chinese students see multiple-choice and essay examination questions differently. Their perception influences their study

strategies when they are studying for examinations. The process of *Calculating* creates perceptions of the types of questions and enables students to engage strategically in what they think are suitable study strategies. Students were primarily motivated by intrinsic factors such as a desire to understand, and extrinsic factors such as a career. Students are responding to the challenge of the task as they see it, rather than the format of the questions in examinations, multiple-choice or essay. Chinese students' ability to use discipline-specific discourse is a mediating process, in that it determines whether Chinese students are required to demonstrate their learning through reading alone or through reading an essay question, and then, by writing. Competence in using discipline-specific discourse enables students to accurately match their perceptions of what is required by a multiple-choice or an essay examination with the actual requirements and their skills to do it. Through practice in using discipline-specific discourse in assessment situations, they can gain feedback and they can demonstrate their learning in English. The availability of answers to previously used multiple-choice questions enables students to access feedback to practice questions.

When students see examination tasks as requiring a deep approach to learning, they report using deep strategies and have deep motives which engage them in understanding. For example, when students see multiple-choice examinations as requiring deep understanding, they will use strategies that foster understanding. It is the perception of the task requirements that determines the approach, rather than the type of examination. However, study strategies may vary because of the open-ended nature of essay examinations and the need to write in a language other than their home language.

Chapter summary

The survey and subsequent interviews both provide quantitative and qualitative data to support Chinese students' engagement in deep approaches to learning for both examination formats. Quantitative findings describe the approaches to learning, motives, study strategies, and engagement that students report using when studying for the two examination formats. These data provide evidence that Chinese students prefer deep approaches to learning for both examination formats but they are more likely to use a higher level of deep study strategies for essay examinations. Students who classify themselves as lower achieving are more likely to use a higher level of surface strategies for essay examinations in comparison with students who classified themselves as higher achieving.

The qualitative findings that arise from analysis using grounded theory explain the quantitative findings further. The five categories of *Calculating, Developing discipline-specific discourse competence in English, Engaging in study strategies, Being motivated to achieve success, and Memorisation, practising and understanding* will be used as a framework to integrate the findings and to explain how these findings relate to each other.

Chapter Five

Integration and analysis of qualitative and quantitative data

Introduction

In this chapter, the data from the survey are integrated with the interview data and discussed using the five categories developed in the grounded theory analysis. Since this is an explanatory mixed methods study with the qualitative data given more emphasis, relevant aspects of the quantitative data are discussed within the categories that arose from the qualitative analysis. These are: *Calculating, Developing discipline-specific discourse competence in English, Engaging in study strategies, Being motivated to achieve success, and Memorising, practising and understanding.* For the final category, I undertake a more detailed analysis using subcategories with additional data to support these. The more fine-grained analysis of this category was prompted by its position in relation to the other categories. It is centrally placed in this study as it brings to the foreground an explanation of the processes that underlie how Chinese students' perceptions of examination formats impact on their motivation and study strategies. The relationships among the categories is represented in Figure 4, and an explanation of this relationship concludes the chapter.

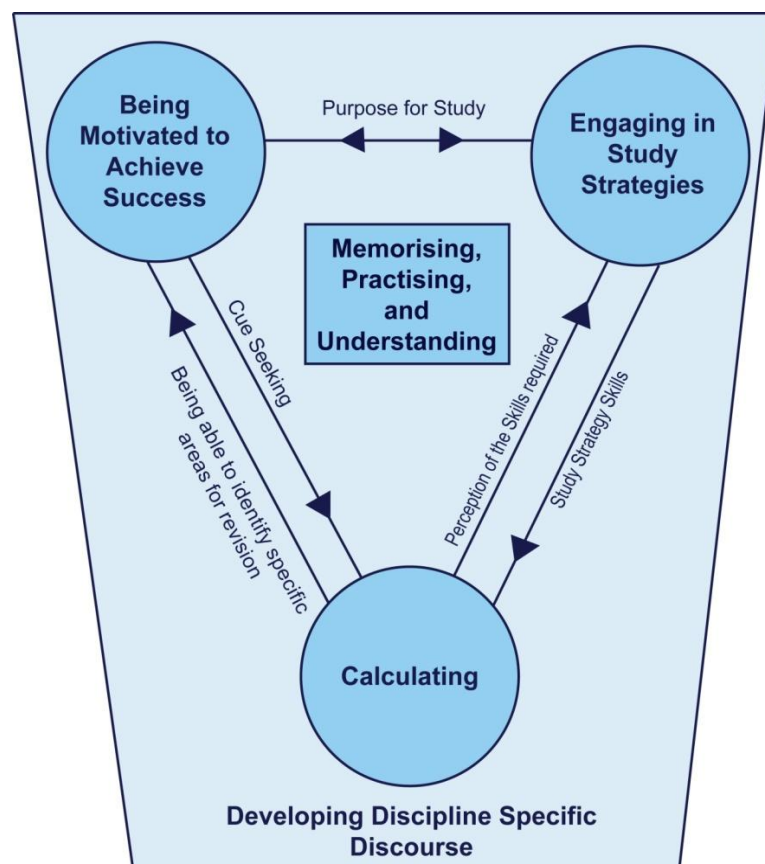


Figure 4: Relationships among the categories

Calculating

For Chinese students studying in a western university, *Calculating* involves trying to predict what will be in examination papers so that they can work strategically to manage time and study strategies. The process of *Calculating* represents a nexus of power between the student domain and the teaching domain as students seek to align their perceptions of what is required of them in an examination to the reality of the examination (Volet, 1999). It forms an important system of communication as students seek to determine the values and expectations of courses through the assessment process (Knight, 2002). Varying combinations of deep and surface motives act as drivers of *Calculating*. The result of the process affects the choices of the study strategies.

In the quantitative data, *Calculating* is implicit in the following item from the adapted R-SPQ-2f (Biggs et al., 2001):

I do not learn things that are unlikely to be in the examination when I am studying for (essay or multiple-choice) examinations (adapted from Biggs et al., 2001).

This item fits on the surface motives subscale because students use *Calculating* as a way of focusing on examinations, implying a surface motivation in only wishing to study in order to pass the examination. In this case, the onus is on the student to undertake *Calculating* for herself or himself. The use of the word “unlikely” suggests that it is the students’ responsibility to determine the probability of any topic occurring in an examination.

At the same time, the qualitative data reveal that *Calculating* is also linked with motivation for Chinese students as it enables them to align the demands of question types with study strategies. This includes the content of the questions, such as which topics will be most important, and the skills needed to answer the questions. Students develop perceptions of the complexity of questions that will affect their approaches to learning (Baumgart & Halse, 1999). Though practising potential examination questions, students can self-monitor their own learning. The following item on the deep strategy subscale in the R-SPQ-2f (Biggs et al., 2001) represents this:

I test myself on important topics until I understand them completely when I am studying for (multiple-choice or essay) examinations. (adapted from Biggs et al., 2001).

Hence a strategy such as cue-seeking, which appears to be a surface strategy, may allow students to identify what is important in the course and undertake a deeper strategy of self-monitoring by seeking feedback on their learning. Although most students reported using old examination papers as their primary sources of cues,

the qualitative data show that *Calculating* occurs as part of interactions between students and lecturers:

I come to most classes with questions that I want answered when I am preparing for essay examinations.

This item is on the deep motives subscale of the R-SPQ-2f (Biggs et al., 2001) and suggests a reflective approach with built-in self-assessment when studying. It may result in interactions with staff or the impetus to explore knowledge, actively using extra resources.

In the codes that arose from the short answer questions on the survey, cue-seeking by looking at previous examination papers was mentioned 20 times for essay questions and 17 times for multiple-choice questions. This suggests that *Calculating* is an important process for both types of examinations. It can be related to deep or surface strategies. When students feel that the process of cue-seeking is effective, it increases their motivation to study because they have more confidence that their own efforts will bring about results. It could represent attempts by the students to negotiate the tacit requirements of assessments (Rust, O'Donovan & Price, 2005). This enables students to have a sense of agency in their learning which is essential to motivation since Chinese students believe that success is a result of effort (Dahlin & Watkins, 2000; Watkins, 2000).

When students engage in the process of *Calculating* in order to be able to practise examination questions, they are seeking feedback. Hattie and Timperley (2007) point out that feedback occurs after instruction and is most useful when students understand at least something about the task. When Chinese students prepare for examinations by meeting with groups of their peers, they report that each member of the group is required to prepare information beforehand. Using the model developed by Hattie and Timperley (2007), the students seek information on a task level, trying to answer the questions "Where am I going?" "How am I going?" and "Where to next?" (p. 87). In order to be able to answer the first question, clear goals are needed. The Chinese students in this study have goals of understanding the content of courses and also passing courses to gain a qualification. When practising multiple-choice questions, students gain feedback on the correctness of the answers from consulting with peers, textbooks or staff:

I think about 20% of them have answers but, for the rest, you can only talk with the others, Maybe ask. Like three people sit together, and two people think A is right. And you think B is right, but you get A. Just follow the other people's idea.

This enables a second feedback question “How am I going?” to be answered for students. Although the student above gets feedback about correctness of the task of answering the multiple-choice question, she does not get feedback about the processing of the task. She resorts to memorisation and does not use the feedback on the correctness of the answer to enhance her future learning or her ability to do similar multiple-choice questions.

In contrast with multiple-choice questions, task feedback on essay questions is more difficult to obtain, especially as students do not usually find a way to get feedback on the language of the task. This impacts on study skills and some students report purposefully seeking out ways of getting feedback on their knowledge and discipline-specific language for essay questions:

She study a PhD in psychology at university so I keep contact with her and I will ask her for her suggestions and advice because she is much more professional than the teacher in learning support and she will give me some extra advice and I know a professor in church. He is my physiology professor so when I go to church I will talk with him about this kind of area and maybe ask him about some case and his opinion about this kind of case and this kind of question. Usually he will give me some kind of information that I cannot find otherwise.

As the quote above indicates, students are likely to report seeking help from peers and experts when preparing to answer essay questions. Higher achieving students have a clearer idea about the processes needed to do essay tasks and seek feedback about those processes. This argument is developed further later in this chapter when I provide evidence of how memorisation and language proficiency may interact for Chinese students.

Successful cue-seeking as part of *Calculating* can represent a tacit agreement among the staff, the students and the institution to enable international students to be successful by passing the examination and the institution to continue to gain the revenue from international students in the future. Items which cue students to assessment are made accessible to students by the institution. An example is the availability of examination papers from previous years. This is a form of “soft leaking” (Saravanamuthu, 2008, p. 173). It can vary from identifying the topics that will be in the examination to reproducing tutorial questions in examinations. If academic staff are evaluated by student achievement, then soft leaking could be one way of responding to the commercial pressures to ensure that international full fee paying students are successful. On the other hand, soft leaking can contribute by giving students the opportunity to self-assess their learning and can contribute to matching strategies with the demands of the questions.

Developing discipline-specific discourse competence in English

In Figure 4, this category encompasses all other categories because the language used in learning provides a milieu for all other processes. Chinese students need discipline-specific language competences in both examination formats. Language learning is integral to their motivation for global career paths as well as to succeed in assessment in this English medium university. Like domestic students, study strategies need to include learning discipline-specific language, but for EAL students there are additional challenges in the process of acquiring that language. Developing general academic language proficiency in English may take five years or longer for an EAL student (Cummins, 2000).

Developing discipline specific language was closely related to *Calculating*. Although the interview data show that it impacts most on essay examinations, some students regard the skills needed to discern the right answers in multiple-choice questions as difficult. The discipline-specific language used is regarded as confusing. One student mentioned this in the short answers to the survey questions:

I just hate MC question, the answers are so confusing.

The confusion may be caused by top-down lexical processing that prevents the reader from arriving at the precise meaning of the text (Johnson & Ngor, 1996). Readers rely upon their own background knowledge to help them surmise the meaning when reading a text. Students were more likely to rely on strategies during the examination for multiple-choice questions such as eliminating answers and making informed guesses. These strategies may be considered as evidence of having become skilled at this kind of test through experience. However, students are reliant on reading skills in their second language in order to be able to discriminate among choices.

English language proficiency is seen as an equity issue by some students, especially in relation to writing essays under examination conditions. Students feel disadvantaged by writing in English:

Because our English is poor. So essay examinations will be reduce the marks. However, the multiple-choice only got one answer, so any one have the equal chance to win.

Fellenz (2004) agrees that multiple-choice questions control for differences in writing ability so that students who have poor writing abilities are not disadvantaged. Developing discipline-specific discourse competence in English relates to both deep strategies and deep motives. From a socio-cultural perspective, language is seen as a tool that mediates understanding (Vygotsky, 1978). This is relevant to language

use as students who may have only learnt English as a foreign language in their own countries were now required to use English to think and show their thinking in disciplines that are new to them (Gao, 2006). Students show different levels of awareness of discipline-specific language and general English proficiency, and this impacts on the strategies they use (Meyer, 2000). These vary from memorisation of chunks of language to the use of memorisation with understanding.

Engaging in study strategies

The adapted R-SPQ-2f (Biggs et al., 2001) subscales divide study strategies into surface and deep strategies. Surface strategies include cue-seeking, memorising, and limiting the amount of material to be studied. Deep strategies include reading additional resources and seeking understanding. Using study strategies is one area where the quantitative data show distinct differences for multiple-choice and essay examinations. Lower achieving students use more surface strategies than higher achieving students when studying for essay examinations. There is no difference between the groups when studying for multiple-choice examinations. The quantitative data also show that all participants use more deep strategies when studying for essay examinations compared to studying for multiple-choice examinations.

The use of more deep strategies for essay questions is also evident from the open-ended survey questions. The main differences between strategies used in studying for essay questions and for multiple-choice questions are in doing extra research (28 for essay examinations and 4 for multiple-choice examinations), identifying key words (6 for essay examinations and 11 for multiple-choice examinations), and studying with others (8 for essay examinations and 1 for multiple-choice examinations).

Qualitative data also illuminate the types of study strategies, such as using extra resources. Specific strategies such as mind-mapping are evident as deep strategies for understanding and are not captured by the items in the adapted R-SPQ-2f (Biggs et al., 2001). The most prominent of these is *Studying with others*. This is a deep study strategy in that group interaction provides linguistic and conceptual scaffolding for students who speak English as an additional language (Gibbons, 2002). Students get multiple opportunities to negotiate meaning through the process of interaction with peers. *Studying with others* also builds motivation in that it engages students in purposeful activity that allows them to build on their background knowledge (Salili & Hoosain, 2007).

Calculating creates examination perceptions which inform the discipline-specific language skills needed. This interaction then enables a match of what the students consider appropriate study strategies for the task. These will be affected also by what strategies a student has available (Tang & Biggs, 1996). The student's motivation is also relevant if he or she is engaging in study with a deep motivation to do her or his best to engage with the task and to gain understanding. The student will try to use strategies that enable him or her to reach these ends. Therefore, the final category highlights the interplay of memorisation and understanding evident in the data as central in the process of learning for Chinese students. Before considering this further, the close relationship between strategy use, motivation and academic achievement is discussed.

Being motivated to achieve success

The R-SPQ-2f was designed to take into account the research that found that intermediate combinations of motives were present such as studying for both intrinsic interest and career aspirations. In my study, Chinese students do not report any differences in motives (as measured by the adapted R-SPQ-2f) when studying for essay or multiple-choice examinations. Even though the majority of the participants prefer multiple-choice examinations which are associated with a surface approach to learning (Struyven et al., 2005), that preference is not associated with surface motives in this study.

The qualitative data reveal that some students feel more challenged by essay examinations and this facilitates deep motivation. The student below prefers essay examinations and relates them to the use of both deep motives and strategies:

Essay exams' essence is the critical thinking part (of course along with related theories to back you up). I believe in preparation for essay type exams the best thing is to read as much related articles from the journals and gain your own perspectives on certain topics. Of course reading the text book is a must but that's just the basic frame and if that's the only source of knowledge then you would probably end up with C's.

Some participants conceive of multiple-choice questions as being less complex than essays, testing a low level of intellectual ability. This perception diminishes their motivation. These individuals may not have experienced complex multiple-choice questions in their previous education. Hence, they do not find multiple-choice questions motivate them to seek understanding. However, most students have immediate positions of both deep and surface motivation. Students who describe both types of motivation are more likely to be influenced by a desire to understand courses, interdependence with family, the collective nature of Chinese society, and

usefulness of the learning for a future career than by the type of examination question. These data concur with Donald and Jackling (2007) who found that Chinese students studying in a western university were intrinsically motivated to understand their courses.

Memorising, practising and understanding

Memorising, practising and understanding is a core category because it has a direct relationship to *Calculating* through cue-seeking and is used in different ways by students who have developed discipline-specific discourse competence. Memorising and understanding are both motives and strategies and seem to be central to the paradox of the Chinese learner (Biggs, 1996; Meyer, 2000; Volet, 1999). Western academics may assume that when Chinese students memorise, they are engaged in surface learning (Chan, 1999; Cooper, 2004). This is salient when interpreting the results of the adapted R-SPQ-2f where they appear as both a strategy and a motive in the adapted R-SPQ-2f (Biggs et al., 2001). Three items on the surface approach to learning scale specifically refer to memory. The first of these items is on the surface strategies subscale and clearly refer to memorising without understanding:

I learn some things by heart, by going over and over them, until I remember them even if I do **not** understand, when I am studying for (essay or multiple-choice examinations). Subscale – surface strategy.

The second is on the surface motives subscale. “Memorising” and “understand” are put in juxtaposition as two opposite motives when approaching learning.

I can pass most assessments by memorising key sections rather than trying to understand them when I am studying for (essay or multiple-choice) examinations. Subscale - surface motives.

Qualitative data, however, indicate that these processes could not always be distinguished.

The third item on the SPQ refers to “remember” and cue-seeking, implying that students will only study information that is likely to be in the examination. While “remember” is part of the item, this kind of memorising may not necessarily be just rote memorisation. The qualitative data show that understanding and memorisation may be linked in this kind of activity:

I think that the best way to prepare for assessments is to try to remember answers to likely questions when I am studying for (essay or multiple-choice) examinations. Subscale – surface motives.

An example of items where “understanding” formed part of the subscales for deep strategies is:

I test myself on important topics until I understand them completely when I am studying for (essay or multiple-choice examinations). Subscale - deep strategy.

The quantitative data indicate that Chinese students do not report having any significant difference in either their surface or deep motives for essay and multiple-choice examinations. They do report using significantly more deep strategies for essay examinations than multiple-choice examinations. These deep strategies are aimed at understanding. In addition, students who classify themselves as getting C grades or below report using significantly more surface strategies for essay examinations than students who classify themselves as getting B grades and above when doing essay examinations. The quantitative data indicate that differences in memorising and understanding seem to be most important in essay examinations.

Because this area of memorising and understanding has been identified as central to the 'paradox of the Chinese learner' (Biggs, 1996; Volet, 1999), the data pertaining to this category are explored further in order to show a more fine grained analysis with subcategories. These are *Rote memorisation without understanding*, *Memorising with understanding* and *Understanding without memorising*, and *Memorisation and language learning*. These concepts of memorisation and understanding are underpinned by research from Au and Entwistle (1999) who studied Chinese and British learners preparing for examinations. However, learning and assessment in a second language was only briefly considered in that study. In the next section, the findings of my study are reported in four subcategories for essay and multiple-choice examinations, illustrated with examples, and then summarised in an overview of each subcategory.

Rote memorisation without understanding

This is not a commonly reported strategy used by the participants. However, there are a few examples that indicate rote memorisation without understanding.

Essay examinations and rote memorisation

None of the interview participants refer to memorisation without understanding for essay examinations. Two participants in the survey report on this form of memorisation for essay examinations. Because of the brevity of the comments, it is difficult to definitively classify them as rote memorisation without understanding:

Memorise as many as info on the text book and slides.

Prepare first or memorise related article.

Both of these students are from mainland China and prefer multiple-choice examinations. This participant reports grades as *Mostly C or below* and is in the third year of degree study. The second is in the first year of university and reports grades as *Mostly As*. The implications in the second reference suggest some other form of preparation as well as memorisation or the sourcing of extra information which was then memorised.

Multiple-choice examinations and rote memorisation

There are several references to rote memorisation for multiple-choice examinations from the interview data. One student talks about remembering the answers, while another talks about memorising definitions but hints at developing understanding during the process of memorisation:

[Multiple-choice] maybe you just remember the answer. I know that it is unfair for other people but it is just the method.

What I needed to do is memorise you know Chinese students are really, really good at memorising even you don't know understand. You don't have too much comprehension you, you just take the relevance ...the whole definitions concepts you have to memorise them.

Memorising key words is mentioned by three of the participants in the survey. This implies some kind of previous revision process with some understanding to identify the key words that would be selected for memorisation:

Memorise the key word of different concepts.

This statement shows the closeness of the connection between memorisation with the categories *Being motivated for success* and *Using study strategies*.

Overview of memorisation without understanding

Rote memorisation without understanding does not appear to be a significant study strategy for students when they are preparing for essay examinations. In the case of multiple-choice examinations, rote memorisation of definitions or key concepts is more important but still confined to a few participants. The data from the adapted R-SPQ-2f (Biggs et al., 2001) also indicate that there is not a significant difference in the surface strategies including rote memorisation used for multiple-choice or essay examinations. For both examination types, it is very difficult to find examples of rote memorisation used alone without some previous form of understanding. This may suggest that when students are preparing for examinations, rote memorisation may occur after understanding as prompts to recall knowledge. This is further explored in the next section.

Memorising with understanding

Memorising with understanding for essay examinations

For essay examinations there were a number of interview comments and seven survey entries that related to memorisation with understanding. This final year student spoke about how the memorisation of theories was a necessary part of demonstrating understanding through a personal voice in essay writing:

For example, my example always like doing the essay for example you should write, memorise the theory first, exactly the theory first who say blah blah blah first, then like write down your opinion that supports that theory, then that will be fine, you will get a better grade than just randomly write some opinion.

Learning a specific study strategy, such as mind-mapping, enabled the understanding to be represented diagrammatically and then captured through memorisation:

My process is quite slow but I think it is useful for me. Once I have write down many times I remember things so I don't need to write down and later on all will draw all the things into a mind map. Probably the first time it is a few pages. Later on it is just one page with all the concepts. Yeah it is really helpful especially during the exams. Like, once you have got the questions, my brain is just went a blank. You cannot remember anything but once you remember the mind map, you think, Oh, those are related with this certain topic, and then what I have written for the subtitle for this specific topic so I can kind of see the mind map. It is really good and helpful.

In the following comment, the participant discusses *memorisation with understanding* for essay examinations as a two-stage process. In the survey entries, each entry indicates that memorisation for understanding is a multistage process:

Read through lecture notes, try to not only memorise but also understand them.

Identifying key concepts is also part of the process of memorising with understanding for essays. The participant below mentions this with the process of practising, which is a form of repetition of information in different ways:

Review all materials given by the lecturers;
Try to memorise the key points;
Review the previous examination papers;
Write the main points on the paper in order to review and memorise them.

Another form of repetition is rereading which was mentioned by two survey participants. These participants read texts over and over in order to gain understanding:

Read the information over and over until I can understand them.

In the process of rereading, repetition can bring about both memorisation and understanding (Dahlin & Watkins, 2000) but practising implies that some

understanding may precede memorisation. Both bring an understanding that could be accessed under examination conditions.

Memorising with understanding and multiple-choice questions

In preparing for multiple-choice examinations, practice is evident as a strategy that brings about memorisation with understanding:

Actually, it is not a kind of memory it is a kind of practice. Do lots and lots of practice so that is why, after a long time, it is very I mean very ... you can memory it definitely because you have done lots of questions and practice already ...something like nature. You know you get familiar with your body from your thinking, you see the question, you know how should I do it. Even sometimes you see multiple-choice, you read the question you know the answer already. Something is already in your mind.

Try to review every topic and remember the steps in the lecture that the lecturer always tell us. Something that is important is always repeated again, some key concepts and some calculations you can remember that and you can do multiple-choice questions like these concepts and find the right answers.

Practice brings an understanding that could be accessed under examination conditions. Especially with multiple-choice questions, the process of practising checks the students' understanding of the type of question and enables students to monitor if their memorising is effective:

Memorise the theory. Do some practice.

Alternatively, some students practise to obtain understanding and then memorise the answers in response to the examination conditions. Direct memorisation of answers to multiple-choice questions is also mentioned by some survey participants:

Do past year's papers and memorise the answers.

Go through previous exam questions, remember the answers.

Overview of memorising with understanding

For both essay and multiple-choice examinations, either practising writing (in the case of essay examinations) or practising the questions (in the case of multiple-choice examinations) is a part of using the strategy of memorisation with understanding. Practising answering the questions combined with reading, reviewing and identifying the main ideas appears to bring about memorisation with understanding when preparing for examinations. Practising as a process to bring about understanding may be familiar to students from their previous education; Dahlin and Watkins (2000) reported its use by students in Hong Kong secondary schools. For the participants in my study, practising is part of a multi-stage process of studying. Qualitative data in *Memorising with understanding* for essay

examinations support the quantitative findings that participants report using more deep strategies for essay examinations than multiple-choice examinations.

Understanding without memorising

Essay examinations and understanding without memorisation

For essay examinations, *Understanding without memorisation* is mentioned by almost half of the interview participants and six survey participants. Participants who rely on understanding for essay writing use many sources of information. They perceive choice and flexibility in the way they use the information to answer questions:

Try to find more information, as much as I can, and understand it completely.

If we get the question, I will just read up on all the things I know and think a lot basically and try to make as much as many leaps in various direction as a I can so I get a lot of information and a lot of knowledge so I cover a lot of bases rather than just doing what they want me to do. That is boring.

This includes the use of examples and applications which enable students to link understanding to prior knowledge and then to manipulate that knowledge in their essay answers:

Deeply understand the concepts, by using some examples and experience to rich the answer.

1. Understand the course theory and topics with examples
2. Try to explain the theory use my own worlds.

Multiple-choice examinations and understanding without memorising

For multiple-choice examinations, some participants perceive the task demands as testing understanding rather than memorisation:

Multiple-choice exam is widely testing whether students understand the course or not.

In the case of the brief responses from the open-ended survey questions, it can be difficult to interpret what “study” or “review” means, and this may imply some aspect of memorisation:

Study notes and lectures, understand and layout the main points of courses.

Review all the points and understand it. Sometimes do some previous exams.

Practising and identifying what parts of the course to understand are often mentioned as part of a combination of strategies used for understanding without memorisation.

Focus on some main aspects and trying to understand these areas. Making sure I can do these questions which related to these areas very well in examination.

Overview of understanding without memorisation

For both essay examinations and multiple-choice examinations, understanding without memorisation can be seen as understanding the question as well as the content needed to answer the question. Understanding in the case of essay questions relates to a breadth of knowledge gained within the course and outside the course. Understanding for multiple-choice questions is more likely to be confined to course materials.

The use of a wider range of materials, including those outside the course to bring about understanding for essay examinations would be indicative of the use of deep strategies. The study for multiple-choice examinations was more likely to be defined by the specified course content. These qualitative data concur with, and elaborate on, the finding in the quantitative data that essay examinations are associated with more deep strategy use for understanding than multiple-choice examinations. However, some participants see that understanding was required for both types of examination.

Memorisation and language learning

All the participants in my study are bilingual or multilingual. The participants have varying degrees of fluency in English and this is a reason given by 17 of the survey participants for preferring multiple-choice examinations:

My poor English skills is not good enough to do essay examination very well.

I prefer multiple-choice exam, because of my English ability. It's hard for me to express my idea very clearly as an English speaker. And also, I should always thinking about the right expression.

Participants express a lack of confidence in their ability to express themselves in English in essays under examination conditions. This third year student, who reported getting grades as *Mostly Cs*, writes a survey response with some feeling about this:

As a student from overseas, my grammar and vocabulary sux (Some good idea I cannot write in other language! So i don't like essays! Seriously!).

Some participants report using memorisation to enable them to compensate for a perceived deficiency in their discipline specific writing skills. Ellery (2008) suggests that EAL students may have a limited range of vocabulary, and a lack of knowledge about how to use discipline-specific discourse which may contribute to plagiarism. There are no examples of participants using memorisation to compensate for a lack of English language proficiency when preparing for multiple-choice questions. However, for essay examinations, this use of memorisation is reported as being used in different ways and for different purposes by students who gave their grades as *Mostly Cs and below* and for students who gave their grades as *Mostly Bs and above*. These qualitative data elaborate on the quantitative finding that students who

report getting *Mostly Cs and below* have a higher use of surface strategies when studying for essay examinations than students who report getting higher grades.

Responses for participants reporting Mostly Cs or below

One survey response from a student who had been at university for more than three years is very explicit about the purposes for memorisation. This participant clearly distinguishes between understanding and rote memorisation when preparing for essay examinations:

Try to memorise everything because it's in my second language. Sometimes understanding became less important than memorising. I try to use the original sentence from textbook in the exam rather than my own words because I think it looks better and will help to get more marks.

The interview participant below expresses a similar reliance on memorisation because of a lack of confidence in an ability to write essays in English. Like the previous example, the memorising of sentences is mentioned, which suggested a lack of confidence in her ability to produce accurate syntax. The comment extends to a lack of knowledge about the discipline-specific genre structure, “how to write the views, how to describe” required in a successful essay. Directly incorporating the views of masters into essays may have been valued in the student’s previous education and may also be influencing the use of memorisation:

For Chinese – I don’t know for Chinese – for me, when I prepare the essay exams I always use the very old and stupid method, that’s memorise them. I just look at the last year and the previous papers and try my best to memorise the sentences, how to write the views, how to describe. When I meet a similar question I just We are not confident if we write ourselves we will be failed. We better copy other views, copy other sentences so we memorise them.

As well as using memorisation to compensate for a perceived lack of grammatical accuracy when writing in English and a lack of knowledge of appropriate genre structure, participants also identify a use for memorisation of discipline-specific academic vocabulary so that it could be used in essay writing:

We are not like Kiwi students, we have to remember. Maybe the lecturer just talk, talk, talk and you have to remember which vocabulary you do not understand so you have to go home and check the meaning. ...Just write them down – 10 times for a word - at least at the end you remember that and put them into your essay. And if you did not study too many vocabularies you could not write them down in your essay. You could not say I think blab blah bah. You would have to write a more complicated sentence in your essay.

A careful analysis of the quote above signals that there could be more than rote memorisation for the participant when using vocabulary items for essay writing. She is using memorisation of terms as a way of demonstrating her understanding of concepts by integrating terms into essays.

Examples of responses for participants reporting Mostly B and above

The process of cue-seeking by looking at previous examination papers, preparation, practising and memorising created understanding, getting “a feel for it,” which enables this student to have the confidence to access knowledge to write essays in English under examination conditions. More successful language learners are more likely to use affective strategies to manage their anxiety and social strategies when language learning (Qingquan et al., 2009). This participant speaks of understanding the relationship among ideas, and the strength gained from practising questions from previous years’ papers to get a sense of knowledge beyond what may be in the examination. Practising is a part of remembering for this student:

We prepare using the last two years examinations. You can find more topics about the essay that will be examined in the exam. For example, last year I was studying at 200 level and that paper and in the past year in that paper I did all the topics in the past year exam paper and when I was taking the exam it was much easier because when you practise the past year exam topics you will remember it and something are related to each other even if not in the exam you will practise and you will remember it and you will get a feel for it. I think it is most important that you practice the past year exam for writing of the essay. I write the whole thing and try to remember it. And during the exam I try to write what I remember.

This final year student strategically combines strategies. These are cue-seeking, writing possible answers, enlisting help from Student Learning Support, a service provided by the university, and then memorising as a way to boost personal confidence. Being able to prepare for writing by getting formative feedback from Student Learning Support supports the student’s use of discourse-specific academic language in an examination situation:

usually some lecturers will give us the area that we will be examined so we can study and write the things out and I will go to student support and ask them to give me some suggestion and help me correct the grammar mistake so that makes me much more confident when I walk into the exam room than multiple-choice.

Both of these participants memorise essay answers but memorisation comes after they have narrowed their focus through prediction of possible examination topics and created their own understanding of the material to be learned.

The combination of memorising and practising also helps mitigate issues of time pressure under examination conditions when writing in English for this student:

Sometimes, if it is a written question or something, I normally prepare before I do it like during my time before the exam I do ...probably prepare a few questions already written and remember them because sometimes we do not have enough time to write. If you see the questions, you probably don’t have time to think about how to write it and the concepts and that kind of thing.

Overview of memorisation for language learning

Two kinds of memorisation seem to be used by students to support their language competence during examinations. These are only used for essay examinations. Those participants who report getting lower grades are likely to focus on a lack of accuracy in their written English and they memorise chunks of language to compensate for it. They report a greater concern for making themselves understood by the examiner than for showing their own understanding of a question. Their responses indicate that they do not seek understanding before they memorised. This is a form of surface learning for essay examinations which may be associated with lower grades as an outcome.

Those participants who report getting higher grades combine memorising with other strategies and use it for the purposes of lowering anxiety or writing more quickly in the time limits. Memorisation comes after the understanding of concepts and enables these participants to feel more confident or to be able to access some ready-made language structures quickly during the examination process. These findings agree with the quantitative data in that lower achieving participants use more surface strategies for essay examinations when compared to the higher achieving group. They engage in memorisation of both the knowledge from the course and also the way to express that knowledge in English.

The higher achieving group also use memorisation, but after they had developed their understanding. Memorisation and practising are part of a sequence of strategies for this group when preparing for writing essays under examination conditions. It is not necessarily related to memorisation without understanding in the adapted R-SPQ-2f (Biggs et al., 2001) surface subscale.

Summary and the relationship among the categories

In this chapter, I have integrated the quantitative data and qualitative data. The results of this integration support the five main categories:

- *Calculating*
- *Developing discipline specific-discourse competence in English*
- *Engaging in study strategies*
- *Being motivated to achieve success*
- *Memorising, practising and understanding*

By using this framework of categories to discuss each set of findings, it has been possible to give further evidence of these categories and to further elaborate on their meaning with the use of quotations. The complexity of *Memorising, practising and understanding* has been signalled, especially in relation to examination preparation for Chinese students who are learning and being assessed through English.

The relationships among these categories can be represented by Figure 4. *Being motivated to achieve success* drives the process of *Calculating*. One of the ways that students do this is through cue-seeking from staff and previous examination papers. The students seek knowledge of both explicit and implicit assessment requirements. When students think that their *Calculating* is effective they are focused, and motivated to study further. Through *Calculating*, students form perceptions of the demands of different assessment tasks. These determine the study strategies that they match with these demands. These strategies will be limited to those the students know of and can use. Practising possible questions as a way of studying for examinations enables better *Calculating* which may lead to a more realistic perception of what is required by the assessment task.

Biggs (2003) describes the effects of constructive alignment of the curriculum, the teaching methods, the classroom climate, the institutional climate, and assessment. Lack of alignment can lead to surface approaches and poor teaching because the students are getting mixed signals. Through *Calculating*, students seem to be attempting to read the state of the constructive alignment of all these factors. They are trying to check if the teachers' explicit statements and actions, such as levels of learning expressed in course objectives, match those tested in the assessment. They are endeavouring to eliminate what Brown and Joughin (2007, p. 61) term "surprises" for international students in assessment. These come from a mismatch of expectations and practices. The process of doing this is through the medium of English, specifically the language that is required in the discipline that they are studying. This may include the language of lectures and the less formal language of tutorial interaction.

Through their participation in different cultural, educational and social environments in their home countries, Chinese students have a continuum of strategies related to memorisation and understanding. Memorisation and understanding are both a strategy and motive. Thus, they are linked to both *Being motivated for success* and *Engaging in study strategies*. Memorisation and understanding will be discussed further in the following chapter.

All these processes occur in an environment where English is the medium of instruction and assessment. It is within this language and its associated culture that students must resolve the tensions between interdependence and independence that drive their motivation to succeed. *Calculating* requires high levels of language skills to understand what is required by assessment tasks. *Using study strategies* can enable the students to develop the discipline-specific language skills that enable and support understanding. Developing discipline-specific language skills are integral to the process of creating understanding. As relative newcomers and speakers of English as an additional language, they are becoming socialised into academic discourses. Using Lave and Wenger's (1991) idea of community of practice, these students are seeking legitimate peripheral participation in the classroom communities. This is a process whereby learners move towards fuller participation in an academic community's activities by interacting with more experienced members of the community. It is through this process, that they become "increasingly competent in academic ways of knowing, speaking and writing" (Morita, 2004, p. 576). This author points out issues of agency and identity construction in which the community of practice including the instructor had a part to play. Individuals bring to these settings their own goals and motivations and these have an influence on the process of becoming members of a community of practice.

Chapter Six

The interrelationship of memorising and understanding in studying for two different examination formats

Introduction

Memorisation and understanding are seen as central in the discussion of 'paradox of the Chinese learner' (Marton et al., 1996). This apparent paradox has been observed and researched within education in The People's Republic of China, especially in Hong Kong (Kember; 2000; Leung et al., 2008; Sachs & Chan, 2003; Wong & Wen, 2001) and it has also been observed in Chinese students in western university settings (Volet, 1999). Biggs (1996) argues that it is the intention of the learning that distinguishes rote memorisation from other forms of memorisation such as those identified by Marton et al. (1996) which focus on meaning. Memorisation and understanding are situated in a context that determines the approach to learning. This context is dynamic and influenced by student factors such as a preferred approach to learning and prior knowledge, the teaching context including assessment, and the learning activities in which the students engage (Biggs et al., 2001). Memorising and understanding are not dichotomous for Chinese students, in that students do not either memorise or understand (Lin & Tsai, 2008; Marton et al., 1996; Sachs & Chan, 2003; Watkins, 1996). Students use combinations of deep and surface approaches, with deep and surface motives reflecting their perceptions of the task (Kember, 2000). They select from the study strategies available to them when preparing for examinations (Tang & Biggs, 1996).

While Biggs' (1987) development of the SPQ has added to quantitative research in the area of approaches to learning, the phenomenographical approach has added to further research in the area of the conceptions of learning (Marton et al., 1996; Marton et al., 1997; Wong & Wen, 2001). It is from this qualitative research in the area of student approaches to learning that particular insights into memorisation and understanding can be gained from the literature. This research asked students to talk about what they thought learning meant. Six conceptions of learning were identified with the final stage being changing as a person (Marton et al., 1993). (See Chapter Two.) These stages were context dependent and related to specific tasks (Entwistle & Peterson, 2004). It is this stream of research that has focused on developing an in-depth understanding of memorisation and understanding for Chinese learners (Marton et al., 1996; Marton et al., 1997; Marton et al., 2005; Wong & Wen, 2001). Concepts such as variation (Marton et al., 2005) and repetition

(Dahlin & Watkins, 2000) are used to relate memorisation and understanding to the Chinese students' perceptions of multiple-choice and essay examinations in this study. Multiple-choice and essay examinations are considered under the four subcategories of *Memorising, understanding and practising*, the core category identified in the previous chapter. The subcategories are *Memorising without understanding*, *Memorising with understanding*, *Understanding without memorising* and *Memorising and language learning* as shown in Figure 5. These subcategories are considered separately leading to five theoretical propositions. These propositions relate to the research questions and form the basis of the model that is presented in the following Chapter Seven.

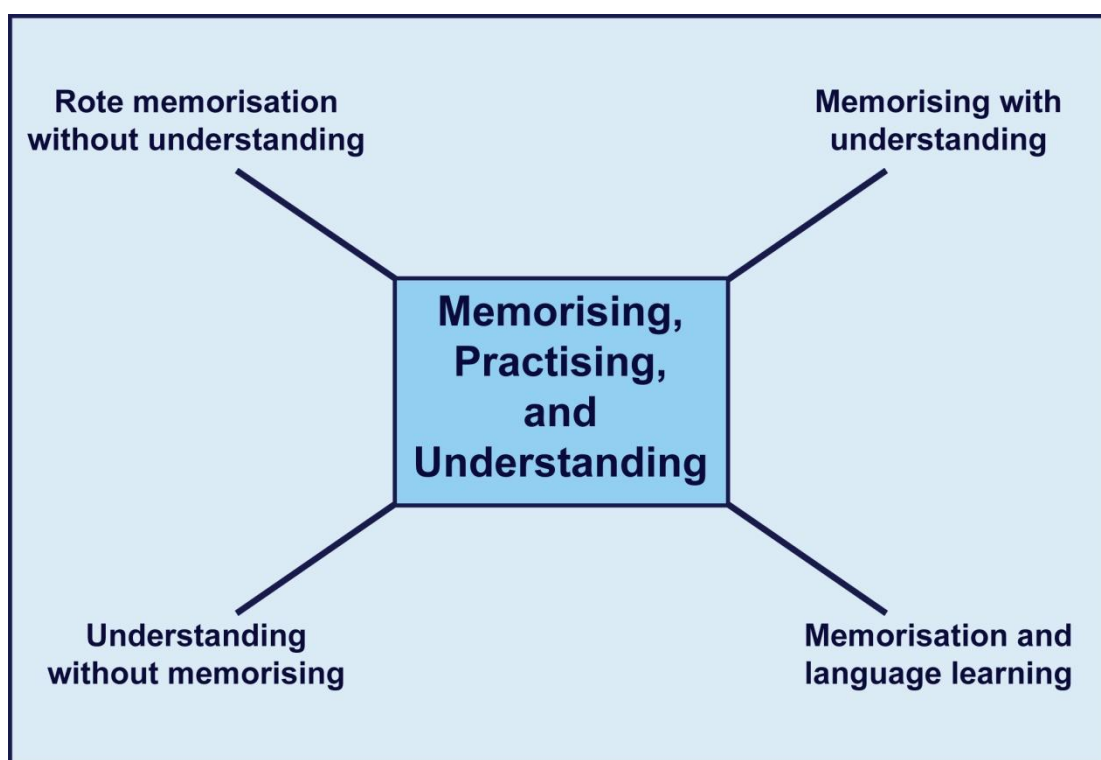


Figure 5: Subcategories of *memorising, practising and understanding*

Memorisation without understanding

Students may be more likely to report using rote memorisation when studying for multiple-choice examinations than essay examinations if they see multiple-choice examinations as requiring finite resources, as being highly predictable, and as testing low level conceptions of knowledge. These perceptions are formed as a result of previous experience with these types of examination question. *Calculating* is a process by which the students strategically seek experience of types of examination questions within the specific context of a course.

Calculating as a way of limiting the range of what will be memorised

When students think a test will include only a limited range of material, they are more likely to be able to use *Memorisation without understanding* (Marton et al., 1997). Where university courses require a large volume of material to be learned, some form of selecting key concepts to be memorised is necessary. *Calculating* determines students' perceptions of the task demands of examination questions in various courses. Hence, it is directly related to *Engaging in study strategies* through the process of cue-seeking. Chinese students have become very cue-conscious in their previous education which emphasised competitive public examinations (Chan, 1999; Yan & Chow, 2002).

Students' perceptions of multiple-choice examinations may lead to *Memorisation without understanding* in some specific circumstances. The students in this study often report seeing the resources for multiple-choice questions in examinations as limited to the textbook, course notes, and course handouts. These materials are prescribed by the teacher and generally readily available to everyone in the course. Students are not required to source additional information for themselves and they are easily able to get feedback on the task. Students are more likely to see multiple-choice examinations as requiring surface strategies when they see certain conditions. The first of these is that the content of the examination questions will be drawn from a finite amount of material such as a textbook. The second is that the examination questions will require the reproduction of facts. This parallels the second stage described in Watkin's (1996) model of learning at secondary school for students in Hong Kong. In this stage, the students intended to learn through reproduction but the quantity of material was too great. They depended on the teacher and their own cue-seeking to direct them in what to learn and they showed low levels of metacognition.

However, seeing multiple-choice examinations as testing knowledge from a limited range of resources does not, in itself, consign students to use rote memorisation only, and preclude the use of understanding. Even when the material is confined to the textbook and class materials, students may choose either to memorise it or to understand it (Wong & Wen, 2001). Other factors such as the predictability of specific questions may impact more on the use of memorisation without understanding.

Predictability and memorisation without understanding

If *Calculating* detects the recycling of specific multiple-choice questions over the years in examinations, *Memorisation without understanding* of the answers may be rewarded. In some courses, multiple-choice examination questions are seen to be highly predictable by students in this study. If answers are available to highly predictable multiple-choice questions, then engaging in rote memorisation of answers without understanding may be an effective way to pass the course. This could be regarded as a type of undetectable plagiarism in multiple-choice examinations.

Lower achieving students report using more surface strategies than higher achieving students for essay questions. If *Calculating* detects predictability in essay examination questions, then rote memorisation of an answer may be seen to be effective, even though the students may be aware of the dangers of plagiarism. The lower achieving students' comments link this use of, and reliance on, rote memorisation to a lack of confidence in their English language ability. They rote memorise chunks of textbooks and model essays written by others. This is consistent with Watkins (1996) who found that Hong Kong secondary students tended to use memorisation more for essay examinations than for multiple-choice examinations because of the perceived language demands of writing in essay examination tasks.

Chinese students go through an academic enculturation process. During their first year of study in a western institution, they need guidance to understand that assessment requirements may require more than repeating memorised words and phrases from authoritative sources (Saravanamuthu, 2008). Plagiarism is a complex, culturally constructed notion (Pennycook, 1996). It may vary in different situations (an essay examination versus an essay assignment). The process of learning how and why to avoid it is part of gaining membership of disciplinary discourse communities. The process of developing the skills to avoid plagiarism may be more difficult for those students who come from backgrounds where the value systems are not closely aligned with those of the discourse community that they wish to join (Leask, 2006).

Memorisation without understanding and flexibility

The effect of *Rote memorisation without understanding* is to produce knowledge that is difficult to apply in a new situation. Information, or even answers, that have been memorised without understanding will not work with essay examination questions or

multiple-choice questions that have not been predicted. Marton et al. (2005) point out that this lack of flexibility happens because students cannot recognise the essence of what they have memorised when they encounter the same concept again. Students who use rote learning may not be aware of this lack of flexibility or they may not see that this flexibility is necessary because they can calculate the chance of being successful in their cue-seeking activities. Alternatively, students may engage in *Memorisation without understanding* as a last resort because they cannot understand (Marton et al., 2005).

Memorisation with understanding

Sequences of strategies

There is evidence from the data in my study that Chinese students engage in a process of memorisation with understanding. Students report a process whereby they engage in a series of study strategies that included identifying key points, mind-mapping and deep memorising, often followed by writing ideas out as prompts in the case of preparation for essay examinations, or practising in the case of preparing for multiple-choice examinations. Similar patterns of using their own notes to produce understanding and then memorising key points or vocabulary was found among fourth and sixth year school students preparing for examinations in Hong Kong (Au & Entwistle, 1999). The process of selecting some content to be learned over other content in a course, identifying what is known already and what needs to be learned and matching this with the task demands requires understanding of the content and a level of awareness of ways of learning (Purdie & Hattie, 1996).

The sequencing of study strategies highlights two kinds of memorisation found by Marton et al. (2005). They are “memorisation that precedes understanding”, and “memorisation that succeeds understanding” (p. 307). These researchers label the latter “Meaningful memorisation” (Marton et al., 2005, p. 306). The data indicate that successful students in my study go through cycles of understanding, memorising and then checking memorising and understanding through practice of previous examination questions to self-assess and generate feedback.

The role of variation in understanding.

The perceived task demands of essay examinations are more likely to encourage memorisation with understanding than those of multiple-choice examinations. The use of variation is part of the process of memorising with understanding for Chinese students (Marton et al., 2005). Students need to encounter the same concept in different ways and different situations.

The experience of patterns of variation specific for different objects of learning is a necessary condition for appropriating those objects of learning. (Ko & Marton, 2004, p. 43)

In this study, these encounters are reported to take place through reading related academic articles to create memorisation with understanding. Participants are more likely to report doing more of this type of study for essay examinations. Rereading of material also provides variation for some of these Chinese students studying for essay examinations. This occurs when students focus on different aspects of a reading each time they reread the same material (Marton et al., 2005). Chinese students are socialised to use repetition to bring about understanding from an early age (Dahlin & Watkins, 2000).

The creation of knowledge objects for multiple-choice and essay examinations

The quantitative and qualitative data in this study are specifically focused on learning for a type of examination, rather than learning in general. The strategy sequences described by the participants for *Memorisation with understanding* closely resemble the process of revision for essay examinations that Entwistle and Entwistle (2003) used to show the development of an awareness of a knowledge object which occurred during revision for examinations. This process resulted in:

an awareness of a tightly integrated body of knowledge, the visualisation of its structure in a 'quasi-sensory' way, awareness of unfocused aspects of knowledge that could be brought to mind as required and recognition of its use in controlling explanations. (Entwistle and Entwistle, 2003, p. 24)

These stages in the processes of creating a knowledge object when preparing for an examination consist of a number of categories as follows:

1. Understanding developed initially during the course
2. Topics selected for revision – probable and interesting
3. Notes/ articles read for overall understanding
4. Summary notes written and thought through
5. A logical structure developed to frame understanding
6. Understanding adapted to exam/teacher demands
7. Understanding committed to memory
8. Details memorised to be triggered by a mnemonic.

(Entwistle & Entwistle, 2003, p 23)

Stages 7 and 8 directly contribute to an awareness of a knowledge object and this awareness also feeds back to stages 7 and 8.

Chinese students in my study used *calculating* during the second stage to select probable topics that were going to be examined for both multiple-choice and essay examinations. Participants report using their initial understanding developed through

the course and selecting possible topics for revision. In the case of essay examinations, there are explicit examples from the participants of the logical structure needed to frame understanding. Examples are mind-maps and identifying key points.

Using the Entwistle and Entwistle model, during the examination, the awareness of the knowledge object then interacts with the demands of the examination. The categories in this process that lead to “Answers with a clear structure and convincing evidence” (Entwistle & Entwistle, 2003, p. 23) are:

Meaning/structure of the question considered” leading to “answers shaped to what the examiners are expecting. (Entwistle & Entwistle, 2003, p 23)

Knowledge object adapted to question demands” leading to “examples and diagrams pulled in as the argument develops. (Entwistle & Entwistle, 2003, p 23)

It is through this process that the knowledge object is modified to answer the question.

When they are studying for multiple-choice examinations, the Chinese students in my study report going through the stages of developing a structure to frame understanding. After summary notes are written including key concepts and definitions, practising old examination questions is used to create awareness of the knowledge object. By doing this, students are progressing through the stages described by Entwistle and Entwistle (2003) of “Meaning and structure of the question considered” and “Answer shaped by what examiners are expecting” (p. 23). Previous experience with multiple-choice questions has led them to anticipate what will happen in the examination. However, for multiple-choice questions, the knowledge object cannot be used to control the answer structure, nor can examples and details be used in an argument structure as described by Entwistle and Entwistle (2003). In the case of multiple-choice examinations, these are not within the control of the student. Students who have gone through the process of memorising with understanding to form a knowledge object in the case of multiple-choice examinations are likely to have spent time practising. Rather than just estimating the predictability of specific questions, the process of practising may enable students to predict the complexity of questions. It is in the process of practising that the variation (opportunities to encounter the same ideas in different ways) required to create understanding is encountered. This may be an alternative to, or be as well as, reading academic articles as was the case for essay questions. While doing multiple-choice questions, the students reported engaging in strategies such as eliminating unlikely answers.

The perceived task demands of multiple-choice and essay questions in examinations may be different. When the revision process is viewed through the lens of creating a knowledge object, the Chinese students in this study report similar processes to those described by Entwistle and Entwistle (2003). In essay examinations, combining surface strategies such as cue-seeking and memorisation with deep strategies such as seeking understanding and reading beyond the material given by the teacher enable the students to shape answers according to what they think is required by the examiner. The task demands centre on students demonstrating their understanding through their answer and they perceive that the knowledge object needed to be well developed in order to be flexible.

In the case of multiple-choice examinations, students see the task demands as using their understanding to make sense of the stem of the question and demonstrating their understanding by selecting, not only the right answer, but the best answer. The knowledge object is not used to control the answer structure. Rather, it is used to make sense of the question and the possible answers. Hence, practice at doing this tests and refines the understanding that has developed as well as promoting memorisation. This process of strategies linking memorisation with understanding is in line with the idea that effort was rewarded with achievement (Dahlin & Watkins, 2000; Watkins, 2000). Understanding required effort, took time, and came slowly rather than as an instant insight.

Understanding without memorising

The role of background knowledge

There is evidence for the existence of *Understanding without memorising* from the findings in this study but it may be difficult to determine whether it is actually a distinct process or just reported as such. When students see links with their background knowledge, they are more able to engage in *Understanding without memorising*. Prior knowledge builds understanding and allows students to compare and evaluate new knowledge (Entwistle & Entwistle, 2003). The kind of prior knowledge required at university may differ according to the discipline and the course. In some courses, such as mathematics, the prior knowledge of students who have been educated in a Chinese school may be different from that gained in the New Zealand curriculum. While a student in political science in my study needs to find out more about politics and education in New Zealand to assist in the process of *Understanding without memorisation*, a student from China with a strong background in mathematics finds the introductory statistics courses easy to understand because she can build on her prior understanding despite the fact that this was gained in her first language.

The use of variation during the process

When students are engaging in Memorising with understanding, the use of examples and multiple sources of information for essay examinations may provide a means of seeing differences and similarities among concepts. Understanding comes about for Chinese students through variation in the way that they encountered ideas. Engaging with ideas as they are presented in different contexts either through reading, studying in groups or practising examination questions enables the students to be confident in expressing their ideas in their own way and allows them to be flexible in adjusting the demonstration of their understanding to their perceptions of the task.

Understanding without memorisation as an active process

Students who perceive the task demands of multiple-choice examinations as requiring understanding, rather than memorisation, link the process of understanding to studying or reviewing. This implies that studying or reviewing is an active process that is more advanced than “Understanding developed initially during the course” in the model that Entwistle and Entwistle (2003) developed for students studying for essay examinations. The presence of the best answer among the possible responses to a multiple-choice question may mean that those participants in my study who seek understanding rather than memorising do not see the need to engage in surface strategies such as rote memorisation when preparing for multiple-choice examinations.

Memorising and language learning

The predictive role of English language entrance tests

Students in a university may have a variety of levels of English language proficiency. While Chinese students may have met the minimum English language requirement for entry into university, assessments such as TOEFL or IELTS may only ascertain their general academic English proficiency. As Chinese students progress through their education and continue to learn through the medium of English, they will also need the discipline-specific language required in each subject area (Bishton, Gleeson, & Tait, 2009). Students’ perceptions of examination questions include an understanding of the level of complexity of the question (Baumgart & Halse, 1999), an understanding of the content, and need to be able to express this understanding in English. At university level, “the discourses of the academy do not form an undifferentiated, unitary mass but a variety of subject-specific literacies. Disciplines have different views of knowledge, different research practices, and different ways of seeing the world” (Hyland, 2002, p. 389). Fox (2004) argues for more research into the predictive validity of gate-keeping tests of academic language proficiency. At a graduate level,

Lee and Greene (2007) found that scores in ESL tests were not linked to Grade Point Average (GPA); their qualitative data revealed that other factors such as their background knowledge were important. In my study, the students brought a wide variety of general oral English language skills to their study. Some had been educated in New Zealand during their secondary school education while others had arrived in New Zealand more recently. In addition, they came from different English language backgrounds. Those from Hong Kong may have been educated in English in their home country while those from mainland China and Taiwan may have been educated in their home language and taught English as a foreign language.

Chinese students learning through the medium of English

The data in my study point to two types of memorisation that are used by language learners when studying for essay examinations. The quantitative data showed that lower achieving students use more surface strategies when studying for essay examinations. The qualitative data indicated that these surface strategies take the form of a focus on memorisation to reproduce language features such as accurate grammar. Chinese students with lower English language ability are more likely to adopt surface strategies but are not necessarily motivated to employ a surface approach when learning at university in Hong Kong through the medium of English (Grow, Kember & Chow, 1991). The focus on grammar was an example of the “blinkered orientation” (Grow et al., 1991, p. 64) of students with a low level of language proficiency. This approach means that they see only small chunks of the text rather than seek underlying meaning. The need to mentally translate between English and Chinese may also hamper them. Because of these difficulties, they are more likely to use memorisation without understanding.

In other studies of memorising and understanding, it may be that language has not been specifically considered because the participants have usually been bilingual or studying in their home language (Entwistle, 1991; Entwistle & Entwistle, 2003; Marton et al., 2005). Au and Entwistle (1999) allude to the use of memorisation of vocabulary items by students in Hong Kong who were being educated in English but were speaking Cantonese at home.

This focus on the detail rather than underlying meaning in language may also reduce the effectiveness of *Calculating*. Students struggle to understand the language implications of the task demands, and they may be less able to align their perceived task demands of the examination type with the actual requirements of the examination question.

In my study, higher achieving students report using memorisation as a study strategy to support their language proficiency in examinations. This takes the form of memorisation and understanding. Memorising what has previously been understood by using strategies such as mind-maps enables these students to access the information in examinations. This is used to decrease anxiety and mitigate time pressures in the examination. It is a deep strategy that promotes understanding.

Discipline-specific discourse as part of the assessment criteria for essay examinations

In both essay and multiple-choice examinations, the knowledge that is valued is determined by the discipline. However, this may not be as explicit for essay examinations in comparison to multiple-choice questions that have one best answer. Essays are assessed according to grading criteria by examiners but grading criteria related to language may not be made clear to the students (Norton & Starfield, 1997). Academic staff themselves may struggle to specify what makes a good essay and to be consistent in their grading (Brown, 2009; Elander et al., 2006). This means that the skills needed to write these essays may be less transparent. While core skills can be taught at lower levels (Elander et al., 2006), at higher levels, the interrelationship with subject knowledge is complex. These linguistic skills may not be explicitly taught within the discipline, and this may provide an additional challenge for essay writing for Chinese students. Students who have a lower level of language proficiency may be less able to gain leverage in developing competence in using discipline-specific language skills and less able to discern implicit criteria for assessing essays. These students then focus on rote memorisation to enhance accurate use of English at a word level rather than trying to convey understanding in essay examinations (Storch, 2009).

Surface strategies are likely to be adopted by students who feel overloaded with assessment (Kirkpartick & Mulligan, 2002; Thomson & Falchikov, 1998). The effect of being assessed through English for those Chinese students who see themselves as not proficient in English language skills will increase the perceived assessment load. Even if other course assessments were not in the form of examinations, some Chinese students saw themselves as disadvantaged by their lack of English language proficiency. Chinese students in this study report that extra effort was required compared to those who spoke English as their first language, not only to make themselves understood in an essay, but also to understand what is required in an essay examination.

Two kinds of memorisation for language learning

Biggs and Watkins (1996) argue that those Chinese who lack confidence in their language proficiency are more likely to adopt surface approaches to learning. However, the results of this study suggest that the issue is more complex. Students who placed themselves in the higher achieving group reported the use of *Memorisation for language learning* as a more holistic strategy, such as managing time or gaining confidence. In contrast, the students in the lower achieving group prioritise language skills related to surface features only, such as the use of the right vocabulary or correct grammar. The concerns of these learners centre around the generic skills, rather than discipline-specific language competence. These students are likely to be at a lower level of language proficiency (Elander et al., 2006). If they employ a surface approach, they may not have learned what understanding means and how to show it appropriately in an assessment (Scouller & Prosser, 1994).

Comments from students in the higher achieving group who are using memorisation as a way of compensating for language proficiency suggest that they see structuring an argument in an essay as an important part of discipline-specific discourse. Their approach indicates that they are able to see the features that differentiate discipline-specific discourses. These students are able to perceive the language task demands of preparing for essays. They are able to adapt their knowledge object to the question demands and shape it according to the expectations of the academics within the discipline, the examiners. This is a process of memorisation with understanding, evidence of a deep approach to learning for essay examinations.

Chapter summary

Memorising and understanding as both motives and strategies underlie the way Chinese students learn for essay and multiple-choice examinations. *Calculating* enables Chinese students to see what content in a course might be privileged by teachers who incorporate it in the examination. It reduces the amount of material to be studied and, in the case of multiple-choice examinations, may enable the students to limit the resources that they need for study. This does not necessarily indicate that the students are intending to use rote memorisation to learn that material. In preparing for multiple-choice questions, a surface approach with rote memorisation may be promoted by the perception that the specific examination questions are highly predictable. In the case of essay questions, *Memorising with understanding* was part of a sequence of strategies that students use to prepare for examinations. This is part of the process of developing a knowledge object observed in both British and Chinese students preparing for essay examinations by Entwistle and Entwistle (2003). Chinese

students adapt this process when preparing for multiple-choice examinations. They report practising as a way of developing understanding. Practising enables them to create variation in ways they encounter the content to be learned. Through practising, they can match their knowledge object to the requirement to understand multiple-choice questions and select the best answer. Practising enables them to adjust their perceptions of the task demands of questions more precisely. They gain experience and feedback on the right answers from doing previous multiple-choice questions. It enables them to predict the content of the questions, the possible complexity of the questions and to ascertain the language demands of the questions. The interaction of *Calculating*, *Using study strategies* and *Memorising or practising for understanding* enables the students to determine more accurately which study strategies matched the examination. Students who have developed competence in using discipline-specific discourse skills are able to engage in these processes effectively, both for essay examinations and for multiple-choice examinations.

Understanding without memorisation is an active process that went beyond just understanding what is said in lectures. It involves making connections to existing knowledge and filling in the gaps in background knowledge if necessary. Encountering ideas in a variety of ways produces understanding which enables students to be flexible when shaping their knowledge object to the perceived demands of a question.

In the case of essay questions, students report using memorisation as part of developing discipline-specific discourse in English. Students with lower grades report concentrating on the memorising to assist them in generic surface language features in writing essays in examinations while students with higher grades report using memorisation at a higher conceptual level to support discipline-specific discourse, for example, the structure and organisation of an argument. This is supported by each of the data sets.

Both the higher and the lower achieving students use *Memorisation for language learning* in response to essay examinations. The focus on surface features may be elicited by the students' perceptions of the criteria used to grade the essay and a desire to pass. The concern of students in the lower achieving group about communicating their knowledge to the examiner contrasts with the concerns of the higher group who are aiming to communicate the relationship among ideas to the examiner. This is evidenced by the quantitative data where the lower achieving group had a higher frequency of use of surface strategies when preparing for essay examinations.

From the discussion so far, five theoretical propositions have developed.

1. Chinese students' perceptions of what is required by an examination determine their approaches to learning, not the format of the examination questions.
2. Sequences of understanding and memorising constitute revision strategies for Chinese students.
3. Memorisation with understanding is created by variation for Chinese students. This variation takes the form of extensive reading for essay examinations and by practising for multiple-choice examinations.
4. Memorisation may function as a study strategy to support the demands of writing in a second language for essay examinations.
5. For essay examinations, lower achieving students are more likely to use memorisation to support the surface features of language, for example, grammar. Higher achieving students are more likely to use memorisation as a strategy to support deep language features such as essay structure.

Table 15: Relationship between the theoretical propositions and the research **questions**

Research questions	Theoretical propositions
Do undergraduate Chinese students' perceptions of two different examination formats impact on their approaches to learning, study strategies, motivation and achievement in a western university?	Chinese students' perceptions of what is required by an examination determine their approaches to learning, not the format of the examination questions.
How do undergraduate Chinese students report engaging in study strategies for two different examination formats in a western university?	Sequences of understanding and memorising constitute revision strategies for Chinese students.
How do undergraduate Chinese students' perceptions of the requirements for language use in two different examination formats affect their study strategies in a western university?	For essay examinations, lower achieving students are more likely to use memorisation to support the surface features of language, for example, grammar. Higher achieving students are more likely to use memorisation as a strategy to support deep language features such as essay structure.
How do undergraduate Chinese students report using memorisation and understanding as strategies for two different examination formats in a western university?	Memorisation with understanding is created by variation for Chinese students. This variation takes the form of extensive reading for essay examinations and by practising for multiple-choice examinations.

These theoretical propositions are incorporated in a mid-level theory that is illustrated in a model in the next chapter.

Chapter Seven

Perceptions of multiple-choice and essay examinations and Chinese students' approaches to learning

Introduction

In this chapter, I will link the theoretical propositions from the previous chapter together by proposing a model to explain how perceptions of multiple-choice and essay examinations impact on Chinese students' approaches to learning, study strategies, and motivation in a western university. This model arises from the interpretation and discussion of the data in the previous chapters and aims to represent the perspectives of the Chinese students in this study. It provides an explanation of how presage and process from Biggs' (2003) 3P model work together to influence the learning of Chinese students in a New Zealand university. The process stage is narrowed to focus on assessment as part of the teaching, specifically, to examination formats. The theory is framed by the environment in a western university and centres on memorising and understanding as study strategies for two examination formats. This theory illustrates that it is the students' perceptions of the multiple-choice and essay examinations that affect their study strategies. Motivation and approaches to learning are not affected by the examination format. Discipline-specific language skills are part of the process of forming the student perceptions and contribute to study strategies. The model is represented as a multilayered Venn diagram. Each layer of the Venn diagram is described and discussed in turn.

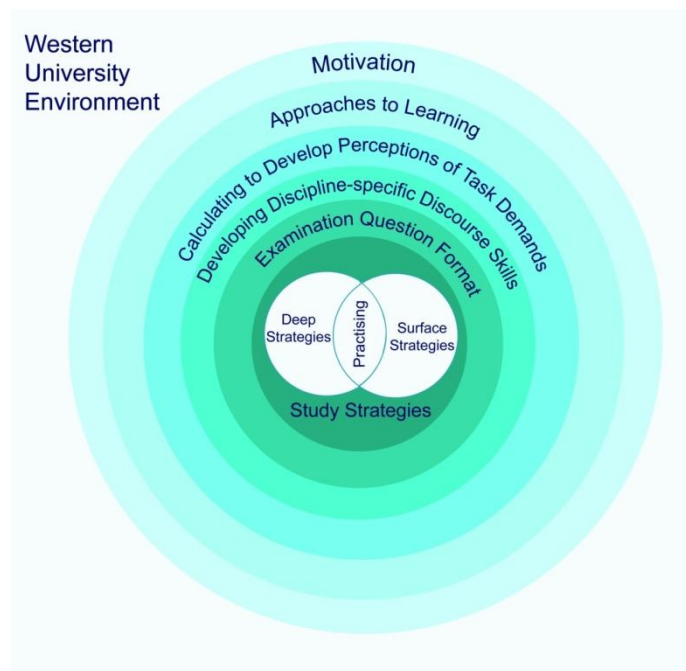


Figure 6: Model to illustrate how Chinese students' perceptions of multiple-choice and essay examinations impact on their approaches to learning

Motivation

In Figure 6, motivation is set in the context of studying in a New Zealand university. Motivation forms the supporting layer of the model. It is the most extensive layer because not all forms of motivation for Chinese students studying in New Zealand are related to learning within the university setting. Motivation is related to adjustment processes. A mastery goal orientation is likely to be predictive of a positive social and academic adjustment process for international students (Chirkov, Safdar, de Guzman, & Playford, 2008). The data showed that some motivation comes from the desire to engage in the problem solving needed to live in a different culture. This is evident in the adjustment processes reported in studies of Chinese students in New Zealand (Ho et al., 2007; Robertson et al., 2000; Spencer-Oatey & Xiong, 2006; Zhang & Brunton, 2007). Within an academic context, essay and multiple-choice examinations do not appear to impact on motivation but individual students' perceptions of the level of knowledge examined by these examination formats may influence the combinations of deep and surface motivation. Motivation forms both an external and an internal driver for success in study in a western university for Chinese students. It can be fuelled by hopes of a successful career (Bai, 2006). Motivation can be also related to an identity as an international person and may include an opportunity to obtain a New Zealand passport, possibly allowing more flexibility for travel and more choice of abode and lifestyle. Alternatively, success can mean bringing knowledge and skills back to the home country to be able to work in a family business or compete for a rewarding job. Success in assessments is a key to the ticket that allows these hopes to be realised. At the same time, some students may doubt the value of a New Zealand degree as a ticket in the changing economic times and employment opportunities worldwide.

The collectivist nature of Chinese society links extrinsic goals closely to intrinsic motivation. Students are motivated to bring status and success to their families and significant others as well as to themselves. In collectivist cultures, families are seen as an extended version of self (Salili, 1996). This study shows that despite being immersed in a western university context, the interdependent nature of Chinese society is still important for many students. Financial obligations to parents who were paying the high cost of education overseas tightens these bonds for students and creates high stakes obligations to succeed in assessments.

When students perceive multiple-choice examinations as testing a low level of learning, they can be less motivated to study hard to succeed. Motivation is related to perceptions of the level of knowledge tested in examinations rather than to the

format of the examination. Intrinsic motivation is brought about by a desire for understanding, whereas surface motivation can be related to memorisation as a strategy. However, for some Chinese students in the study, deep motivation was associated with both memorisation and understanding. This brought about the need to examine *Memorisation with understanding* as a subcategory for both multiple-choice and essay examinations. Students use sequences memorisation as part of a sequence of processes to bring about understanding when preparing for both multiple-choice and essay examinations.

Motivation forms the basis of approaches to learning and is closely linked to memorisation and understanding as study strategies, but intrinsic motivation does not preclude the use of seemingly surface strategies such as memorisation because memorisation can be part of the process of understanding. Therefore, in the model, motivation is the first layer that is superimposed on the context of learning within a western university for Chinese students in Figure 6.

Approaches to learning

Approaches to learning form part of a system that incorporates presage factors, a process, and a product. The presage factors exist prior to learning taking place. These include the teaching context and the learners' "prior knowledge, ability, and their preferred approaches to learning" (Biggs et al., 2001, p. 135). My study has sought to explain how some common presage factors define Chinese students as a cultural community (Gutierrez & Rogoff, 2003). These are important because this study is set in a western university and this group of learners can differ from New Zealand domestic students in their prior knowledge, ability, and preferred approaches to learning. These differences may arise because of their prior educational experiences and their culture. The Chinese learners in my study are assumed to have some common presage factors that they share, such as studying in English when it is their additional language (EAL), coming from education systems which may be based on different teaching and assessment styles, bringing motivation from within their home culture and undergoing a process of enculturation. In the literature review in Chapter Two, the complexity of the identity of the Chinese learner was discussed.

However, this is not a comparative study that contrasts Chinese students to domestic students. Rather, it is an investigation of a part of the "ecosystem" (Biggs & Watkins, 2001, p. 278) that constitutes a classroom from Chinese students' point of view. The classroom is set within the wider community of a New Zealand

university and a western culture. This investigation looks at the process level of Biggs (2003) 3P model which shows how students respond to a particular task, such as multiple-choice or essay questions as examination tasks. The findings from my study indicate that in one western university, Chinese students' approaches to learning are not affected by their perceptions of the format of the examination. The students in my study use a combination of deep and surface approaches when studying for both examination formats but they are more likely to have a higher deep approach than surface approach when studying for either examination formats. The sample size did not permit differences in approaches to learning in different disciplines of study or different courses to be evaluated statistically.

A combination of both deep and surface motives and strategies determined the students' approaches to learning for multiple-choice and essay examinations, rather than either a deep approach or a surface approach. This was consistent with Scouller (1998) who showed that approaches to learning for Australian students were linked to the students' perceptions of the intellectual abilities being assessed by different types of assessment. Chinese students did not vary their approaches to learning depending on the format of examination questions in this study. This suggests that they report a preferred deep approach to learning that is not influenced by the format of the examination questions or they can conceive of both types of examination questions as having the potential to test understanding. This perception is developed through seeking familiarity with assessment tasks using the process of *Calculating*.

Calculating to develop perceptions of task demands

Chinese students' perceptions of what is required by an examination can contribute to determining their approaches to learning, not the format of the examination questions. *Calculating* is a skill brought from previous experience (Saravanamuthu, 2008; Volet, 1999) but its use by Chinese students in a western university enables an adjustment to a new context where the actual demands of assessment may be less familiar for students because of language and lack of familiarity with the requirements of the task. It can also be facilitated by institutional practices such as providing previous examination papers so that students can practise the assessment tasks. Engaging in this type of practice enables students to work with the knowledge object that they have created (Entwistle & Entwistle, 2003). Although this appears to be a surface strategy, it does not preclude the deep understanding that comes from practising assessment tasks and getting feedback on gaps in the understanding required by the task. It can contribute a surface approach if

calculating is for the purposes of predicting examination tasks so that the student can use *Memorisation without understanding*.

Calculating may help Chinese students identify and focus on the most important parts of a course in their study. The need for calculating may be exacerbated by the perception that students who are taught and examined in a language other than their home language need to work harder than English speaking students. This highlights students' need for guidance to develop the discipline-specific discourse skills that are needed in assessment processes (Gibbs & Simpson, 2004).

Developing discipline-specific discourse skills

Chinese students in this study are learning through the medium of English. Smith (2009) concludes that examinations may disadvantage EAL students compared to other forms of assessment. Qualitative data show that the students had different levels of awareness of how language impacts on success in examinations. Lower achieving students are likely to be reliant on survival strategies such as problem solving and lexical processing when reading (Johnson & Ngor, 1996). These top-down strategies may not be supported by text-decoding strategies based on knowledge of the language of the text. The use of these strategies may lead to misunderstanding and difficulty in finding the implied meaning especially in the case of long sentences (Johnson & Ngor, 1996). Students used strategies such as guessing or eliminating the most obvious wrong answers when doing multiple-choice questions. However, for those students who have a lower level of discipline-specific language skills, the chances of discerning the right answers in multiple-choice questions will be lower than for those who can use the language of the discipline more competently. Students who are less proficient in English will be inclined towards uninformed guessing in multiple-choice examinations or to memorisation of texts in essay examinations. Without the skills to engage with the language required in assessment tasks, the students will not be able to capitalise on the process of *calculating* to seek understanding of the task. They may be unable to judge the complexity of knowledge required by the task, affecting their ability to select appropriate strategies. Students' perceptions of examination questions affect their approaches to learning (Baumgart & Halse, 1999; Davidson, 2002; Lingard et al., 2009).

The qualitative data indicate that the language required to write essays is supported by *memorisation with understanding* for the higher achieving students. The lower achieving students were focused on the surface features of writing essays in English under examination conditions such as grammar and vocabulary. The quantitative

data support the conclusion that these lower achieving learners report using more surface strategies than their higher achieving peers for essay examinations. Grow et al. (1991) postulated from their study of Hong Kong university students learning in English that students with limited English abilities may find it difficult to use deep strategies because of the challenges of reading comprehension and the need for translation as part of their thinking. While my study did not measure students' English ability, it was possible to see that those students who used memorisation as a surface strategy to compensate for what they perceived as lack of English language proficiency were likely to be among those reporting lower achievement.

Kutz (2004) challenges staff and students to consider the positioning of EAL students as outsiders within courses. This highlights Chinese students as having a deficit because English is not their first language and their backgrounds differ from domestic students. All learners are acquiring the discourse of a discipline and need their prior knowledge valued and connected to new academic knowledge. All students, not just EAL students, need to acquire competence in discipline-specific discourse as it is the language of teaching and assessment in university courses.

Examination question format

Motivation drives approaches to learning for Chinese students. Because assessment was central to this study, *calculating* was a way of understanding the requirements of the assessment task. Some students may view multiple-choice questions as testing a lower level of knowledge. This may be a perception based on prior experience with this format of examination question (van de Watering, Gijbels, Dochy & Van der Rojt, 2008) and a perception that writing is a more difficult skill for an English language learner than reading. Students need discipline-specific discourse skills to create understanding by using deep study strategies. They refine their understanding through cue-seeking, but as van de Watering et al. pointed out, practising assessment items may not be enough to enable students to answer questions correctly. Some students need assistance to see the level of cognitive demands of the questions and to match this with appropriate strategies. Chinese students must match their available study strategies to their perceptions of what will be required by examination questions including requirements based on the level of thinking and language use within the format of the question.

Students see that multiple-choice questions are often repeated from year to year and, hence, multiple-choice examinations are predictable. Students are able to practise questions from previous years and get feedback on their correctness more

easily than with essay questions. The correct answers may be available officially, through lecturers, or they may be discussed and decided in groups of students. In the case of essay questions, students can discern the type of questions but it is more difficult to get feedback on the kind of answer required. This not only includes the content of the answer but the language that is used to express that content which encourages those students who are not confident users of academic English to engage in rote memorisation of prepared answers. Practising multiple-choice questions brings about direct feedback on the task and for those learners who are predisposed towards a deep approach to learning, it can also bring about feedback on the processes required to do the task.

The requirements of essay questions written under examination conditions can be more opaque since students have less access to feedback, especially feedback on processes needed to do the task, including the use of discipline-specific discourse. Smith (2009) concludes that examinations may disadvantage EAL students compared to other forms of assessment. Types of assessment vary according to the conditions under which the assessment takes place (Gibbs & Simpson, 2004). Students who have English as an additional language may be disadvantaged by time limits under examination conditions (De Vita, 2002). In this study, students reported needing time to organise their ideas in the process of essay writing and physically write their ideas. Essays written as an assignment within a course allow students opportunities to draft and redraft, use resources such as textbooks and readings, consult with peers and experts and use a word processing programme. While they are doing this, the process is not constrained by time, although deadlines must be met. In contrast, when students write essays under examination conditions, they cannot access additional texts as resources (except in the case of open-book examinations). They can prepare through the process of *calculating* to anticipate questions but they cannot seek help from peers and experts during the process of writing in the examination. They need to hand-write rather than word-process their answers. Hence, they do not have the assistance with grammar, spelling and bilingual translation that these programmes can provide. These features are particularly important for Chinese students who are learning and being assessed in their second or third language. The data in this study reveal that Chinese students see themselves as disadvantaged in this process, especially when writing essays under examination conditions.

Hattie (2009) points out that the dominant factors in essays for assessment at university are organisation, style and language factors. Students have difficulty in

getting feedback on essays written under examination conditions, in particular, the requirements for language use. Chinese learners need this feedback so they can understand the requirements of writing in a specific discipline. Leask (2006) describes the process of seeking membership of an academic discourse community as “effortful and extended” (p. 188), especially when students have very different previous educational and linguistic experience. Without an understanding of explicit grading criteria beforehand, those students reporting lower levels of achievement may be memorising the words of others. They may be unable to discern that this is considered inappropriate or they fear that grammatical errors will unduly influence the grade. As a possible solution, Sadler (2009) recommends pedagogical processes where students can learn to appraise the quality of work such as essays within their courses. This allows them to self-monitor their own work and gain a real understanding of what assessment criteria mean in practice.

While the two different question formats make different demands of students’ competence in discipline-specific language, the perception of these demands elicits study strategies of memorising and understanding. The demands of the two different examination formats are brought into sharp focus by *calculating* that enables practising.

Study strategies: Memorising, practising and understanding

Rote memorisation without understanding, memorisation with understanding and understanding without memorising are central to any theory which seeks to explain how Chinese students’ perceptions of essay and multiple-choice examinations impact on their learning. Memorisation and understanding are both strategies and motives in the approaches to learning. However, this study showed that they may not necessarily be congruent for Chinese students. Students may have deep approaches to learning but make use of surface strategies when preparing for examinations.

Students used both deep and surface strategies in preparing for both types of examinations. Sequences of understanding and memorising constitute revision strategies. *Memorisation with understanding* is created by variation for Chinese students. This variation takes the form of extensive reading for essay examinations and by practising for multiple-choice examinations. However, they were more likely to use more deep strategies to promote understanding when preparing for an essay examination. Students may have deep motivation and they may have developed a perception of what is required by assessment tasks through the process of cue-

seeking. Additional use of memorisation as a strategy for essay examination for lower achieving students could relate to a lack of confidence in the adequacy of their language skills to match the task. Rote memorisation may be a surface strategy that is brought about by the need to prepare for examinations but it may arise from a deep motive. Lower achieving students may have some understanding but they may resort to rote memorisation of chunks of language in order to express their ideas under examination conditions. The use of this surface strategy is a response to the format of examination question, in this case, an essay. It may also be a response to the Chinese students' perceptions of the part skills in using discipline-specific language play in the grading criteria.

While Chinese students may change their strategy use for essay and multiple-choice examinations depending on the impressions gained from *Calculating*, they do not change their approach to learning or their motivation.

Chapter summary

Chinese students bring motivation, approaches to learning, and study strategies to western universities that may have been developed in response to very different educational environments. Each educational environment sets “a pedagogical flow” (Biggs & Watkins, 2001, p. 278) where approaches to learning are developed according to contextual factors at a classroom level, an institutional level and even at a national level where the limited places available in tertiary education may promote a competitive attitude. When Chinese students enter a new education system there may be a disconnection with their previous educational experience. Chinese students seek ways of legitimate peripheral participation in their courses in this new situation. This is a process of negotiation of agency and identity. Ecclestone and Prior (2003) point out assessment regimes contribute to shaping learners' identities. They use the term “assessment career” (p. 481) to illustrate how learners bring different cultural capital to a learning situation. Chinese students have assessment careers shaped by their previous educational experiences which may be very different from those of the domestic students. They seek to address this by accessing the cultural capital that is inherent in the assessment practices of their courses which they do by seeking opportunities through formative assessment, practising previous examination papers and by trying to open up a dialogic space with lecturers and fellow students by initiating discussions of assessment.

Examinations have been significant in the previous assessment careers of the students. While students are aware of the differences between multiple-choice and

essay questions, they also seek to understand the complexity of the questions beyond question type and identify the knowledge and skills needed to respond to these questions. They are acutely aware of learning and being examined in a language that is not their home language. They respond with combinations of memorisation and understanding that they have brought from their previous environment and they attempt to match these with their perceptions of the demands of the assessment tasks including grading criteria for essays.

Another influence on their assessment careers has been previous successful experience of memorising and including the voice of masters or authoritative experts in essay writing (Chan, 1999). When western academic essays assess understanding, students are required to use discipline-specific discourse to demonstrate that they have an understanding of ideas of authoritative experts in a field, to attribute these ideas to a source, and to critically evaluate them. To gain this sophisticated new skill, previous learning from assessment careers may need to be abandoned or transformed. The processes of reconceptualising how western institutions value different kinds of knowledge may drive Chinese students towards seeing knowledge as transformational, “changing as a person” (Marton et al., 1993).

These processes of reconceptualising the value of knowledge within a new context are driven by complex issues of motivation where interdependence with family and significant others, and the independence of a western university environment play out. Academic success is highly valued for its own sake and for its future utility as it enables Chinese students to pursue the hopes of global identities. This combination of factors determines approaches to learning which may be composed of both surface and deep approaches. In this study, deep approaches were reported to predominate and these are not dependent on the assessment format in the examination.

Chapter Eight

Conclusion

Introduction

This chapter concludes the study. It considers the issues of internationalisation and equity that were presented as the rationale in Chapter One. The methodology and findings are summarised. The contributions to the field from the research outcomes are considered. The limitations are reviewed, followed by the implications for tertiary educators. I reflect on my own learning as a teacher and look at the possibilities for future research to build on the findings of this study.

Summary of the study

The study was undertaken to gain a better understanding of the teaching and learning of Chinese students in a western university where English is the medium of instruction. This understanding enables tertiary educators to address some issues of equity so that Chinese students are not marginalised by being seen as rote learners who only engage in surface level strategies. An understanding of the effects of examination formats on the motivation, approaches to learning and study strategies of Chinese students enable tertiary educators to have more knowledge about the impact of examination formats. As a consequence, educators may be more able to assess in culturally inclusive ways that promote deep learning.

This thesis aimed to address the following research questions:

- Do undergraduate Chinese students' perceptions of two different examination formats impact on their approaches to learning, study strategies, motivation and achievement in a western university?
- How do undergraduate Chinese students report engaging in study strategies for two different examination formats in a western university?
- How do undergraduate Chinese students' perceptions of the requirements for language use in two different examination formats affect their study strategies in a western university?
- How do undergraduate Chinese students report using memorisation and understanding as strategies for two different examination formats in a western university?

This was a sequential mixed methods study. Quantitative data were collected using adaptations of two questionnaires, PALS and R-SPQ-2f. The first questionnaire generated data about the students' goal orientations. The students completed the second questionnaire for two different scenarios, studying for examinations that are mostly multiple-choice questions and studying for examinations that are mostly essay questions. The quantitative data informed the first two research questions by providing evidence that Chinese students' perceptions of multiple-choice and essay examinations did not impact on their approach to learning or their motivation but did impact on their study strategies. Chinese students who reported lower achievement were likely to report using more surface strategies for essay examinations than students who reported higher achievement. Chinese students engaged in both surface and deep strategies for both formats of examination depending on their perceptions of what is required although they are likely to report more use of deep strategies than surface strategies for essay examination formats.

The qualitative study used a grounded theory approach and informed the last two research questions. It showed that the perceptions of different formats of examination questions are developed through a process of seeking cues about assessment by the students. Because Chinese students are being taught and assessed in English, their perceptions of the requirements of language use for each examination format affects study strategies. Students who self-report as lower achieving may use memorisation to study for examinations that require essay writing. For them, memorisation of the texts of others is required to show their knowledge of those texts and to compensate for their lack of confidence in writing. The students in this study report using memorisation and understanding as both separate and combined processes in their study for examinations. These strategies of memorisation and understanding are linked to the perception of the examination format and are nested within students' development of discipline-specific discourse skills, the process of calculating through which students develop their perceptions of examination tasks, their preferred approaches to learning, and their motivation.

Research outcomes

In the conceptual framework of this study in Chapter Two, four streams of literature were identified. These were student approaches to learning, the Chinese learner, assessment, and learning for students whose English is an additional language. Each of these streams overlapped with others. The purpose of this section is to consider the research outcomes of this study in light of these four streams of research.

Approaches to learning

Student approaches to learning are determined by interaction between the teaching context and the individual learner (Biggs et al., 2001). The individual learners who participated in this study brought assessment careers, partly formed in Chinese education systems, to the context of a western university. They describe perceptions of assessment that influence their study strategies and motivation. These have been formed by their culture, family values, previous education and their confidence in showing their knowledge of a discipline in English.

Previous research has shown that multiple-choice examinations push students towards a surface approach to learning (Entwistle & Entwistle, 1991; Thomas & Bain, 1984). This is not the case for Chinese students in this study. They are more likely to report higher levels of a deep approach to learning for both examination formats but they report some difference in study strategies. While the students reported using higher levels of deep strategies for essay examinations compared to multiple-choice examinations, it is the interplay of memorisation and understanding that is an essential part of their study skills. In the qualitative data, the Chinese participants described how *memorising with understanding* was used. This is consistent with conclusions about the complexity of memorisation and its relationships with understanding from other researchers (Lin & Tsai, 2008; Marton et al., 1996; Sachs & Chan, 2003, Watkins, 1996). An additional layer of complexity to the processes of memorisation and understanding is apparent for Chinese learners who are situated in a western university. These Chinese learners are learning in English which is not their home language and are immersed in an education system that may be very different from their previous education (Campbell & Li, 2008; Gu & Schweisfurth, 2006).

The Chinese learner

In this study, the term 'Chinese learner' has been used in order to draw on the body of research based on this concept (Biggs, 1996; Cooper, 2004). This includes the research on learners from CHC backgrounds (Volet, 1999). The term, 'Chinese learner', has also been contested (Clarke & Gieve, 2006) with a call for a greater understanding of the context of "the paradox of the Chinese learner" (Saravanamuthu & Tinker, 2008, p. 132). The mixed methodology of this study endeavoured to capture the concept of the Chinese learner within a specific, cultural context, that of a western university where the medium of instruction was English. The research was premised on the idea that the identity of international students is not fixed and changes within a context, including place and time (Doherty & Singh, 2005). As I argued in Chapter

Two, the kinds of Chinese students who have come to New Zealand to study have also changed over time. The findings of this study contribute to the growing body of research on Chinese students in New Zealand tertiary institutions (Holmes, 2004; Li et al., 2002; Skyrme, 2007). This research informs the teaching of these students by specifically considering the impact of examination formats.

The use of a mixed methods study enabled the quantitative data to be considered within the context of the grounded theory study. The use of a survey enabled the reports of a number of Chinese students to be compared and contrasted for multiple-choice and essay examinations. It enabled self-reports of students' achievement to be linked to their reports of their study strategies for multiple-choice and essay examinations. Lower achieving students said they used more surface strategies for essay examinations than higher achieving students. Students did not report differences in their goal orientation depending on their preference for essay or multiple-choice examinations in the quantitative data analysis. The qualitative data confirmed that the collectivist approach to motivation found by Salili (1996) was still relevant for Chinese learners studying in a New Zealand university. The role of career goals as contributing to both intrinsic and extrinsic motivation for Chinese learners (Kember et al., 2008; Kember & Leung, 1999) was magnified for the Chinese learners in this study as they felt that families had made a considerable investment in their future, especially financially. Success at university and success beyond university were seen as both a personal and family goal.

The qualitative data provided further explanation of the quantitative data when the students discussed how their perception of learning and being assessed through the medium of English impacted on their use of memorisation and understanding when preparing for the two examination formats. The qualitative data also revealed how students actively sought to align their perceptions of examination formats with the actual requirements of those formats through a process of *calculating*. This process included predicting and practising examination questions while engaging in sequences of memorising and understanding.

To draw on, and to use, cultural knowledge but at the same time to guard against cultural generalisations and assumptions, two Chinese cultural advisors were consulted in the study. These two Chinese academics were both familiar with learning and teaching in their home regions and also in New Zealand. This is particularly relevant when considering the social and educational factors impacting on the identity of undergraduate Chinese students in a New Zealand university.

The concept of the paradox of the Chinese learner as one who appears to use rote memorisation but is successful has been further investigated in this study. Students reported complex processes of memorisation and understanding happening together. These have been elicited by their perceptions of what was required by the examination, the processes of which are at the heart of the paradox for Chinese learners as they continue their assessment careers in a new context.

Assessment: Multiple-choice and essay examinations

The results of this study of Chinese undergraduates concur with Zeidner's (1987) study of school-aged children. The majority of participants preferred multiple-choice assessments. Like the school-aged participants, those Chinese participants who preferred multiple-choice also reported higher success expectancy and lower anxiety but these were attributed to the perceptions of the English language competency needed for the different examination formats. The Chinese students in this study reported that completing multiple-choice questions was less demanding of their skills in discipline-specific language than writing essays under examination conditions. The exceptions in the qualitative data were those students who had experienced multiple-choice examinations that seemed to demand understanding and require a high level of discipline-specific language skills to discriminate among the responses to the multiple-choice questions. The other exception was those students who, like those in Birenbaum and Feldman's (1998) study, had confidence in their academic ability. This confidence enabled the students to engage in deep understanding by using techniques such as mind-mapping and group work as well as memorisation with understanding. These students also had ways of discerning and preparing for the language demands of essay writing through *Calculating*.

Learning through the medium of English

Chinese students in this study were very aware of the issue of learning in English. In the qualitative data, they were very forthright in their discussion of *developing discipline-specific discourse competence in English*. Students were aware of the need to select strategies that assist them in being successful in assessments within a particular discipline, rather than just general language learning strategies required to pass admission tests. The use of learning strategies aimed at developing discipline specific competence in English was found in other studies of Chinese studies in western universities (Gao, 2006; Skyrme, 2007). However, this study revealed the processes that Chinese students reported using in this context to develop their understanding of the discipline-specific language for two assessment formats. Studying for essay and multiple-choice questions in examinations involved

seeking cues by actively negotiating with university staff, practising previous examination questions and then, using strategies such as group work to get feedback. Students who were not confident in their discipline-specific language competence found it difficult to discern the study strategies required. They were more likely to use memorisation of chunks of language as a strategy to support features such as grammatical correctness in their essays for examinations. Students who reported higher levels of achievement were more likely to use *memorisation with understanding* or memorisation of previous understanding in the process of preparing for essay examinations.

Contributions to the field

The outcomes of this research have contributed to literature in the field of Chinese learners studying in western universities. This research has shown the complexity of the relationship among motivation, approaches to learning, developing a perception of the task demands of examination formats, developing discipline specific discourse skills and for the Chinese learners studying in an English medium university in New Zealand. It has contributed to the field by not only considering how perceptions of different examination formats affect approaches to learning for Chinese students but also by illustrating the role that learning in English at university plays.

Limitations of this study

The limitations in this study arose from the sampling methods and the instruments used.

Sampling

Participants in this study were drawn from one English medium university in New Zealand. This limits the generalisability of the findings, since, at any one time, the population of students enrolled at a university will be unique. However, it does enable one aspect of context to be constant because the students are all subject to the same university policy and practices. The inference quality must be considered carefully in light of the possible biases from the sampling methods in the quantitative study (Onwuegbuzie & Johnson, 2008). Although all Chinese international and permanent residents who were undergraduate students received an invitation to take part in the survey, those who did take part may not have been representative of the population in the university. The participants were all volunteers who were willing to spend time communicating in English. This may have biased the quantitative sample towards students who were more confident in their English language skills. It still incorporated a range of grades from students who classified themselves as

gaining *Mostly As* to students who reported getting *Most Cs*. Only one student reported grades as *Mostly below C* which would suggest that the more successful students were likely to participate in the survey.

The participants in the survey provided a pool of volunteers for the purposive sampling that was undertaken in the qualitative study. While the self-report of grades, strategies, motivation and approaches to learning may seem to lower the reliability of the study, it is consistent with a constructivist approach of drawing data from participant voices to illustrate perceptions (Chamaz, 2007; Mertens, 2005).

Instruments

Other limitations of this study come from the use of two questionnaires. PALS has been widely used for school-aged children. In this study, it was modified and trialled for use with tertiary students. The SPQ questionnaire has been widely used at tertiary level. While the instruments were trialled on EAL students, the need to keep as close as possible to the original wording while adapting the instruments for the purpose of this study, may have impacted on the readability of the items and decreased validity and reliability. A more significant issue may have been the use of the hypothetical situation of essay and multiple-choice examination formats with the SPQ questionnaire. While hypothetical situations may influence reliability in surveys, it was not possible to engineer experimental conditions to contrast actual situations of multiple-choice and essay formats across a wide number of courses in a university. In most courses, Chinese students were in the minority (as is the nature of a minority cultural group immersed in a different educational context). Hence, using a hypothetical situation was a practical compromise to draw on the reports of a range of participants. In this study all of the participants had experienced both formats of examinations at some stage during their education and were drawing on prior experience rather than a completely hypothetical situation. However, each participant's experience of what the term 'essay question' encompasses may be different.

Qualitative data

The positionality of the researcher as discussed in the process of data gathering and member checking may have also contributed to the limitations of this study. Participants especially from CHC background may have felt constrained in what they could say to an older person who was a member of staff of their university. This is important to consider as it may have diminished the effectiveness of the process of member checking. Hence there was a greater reliance on peer checking from

one of my cultural advisors to contribute towards the trustworthiness of the qualitative data.

While cultural advisors provided insights, their input must be considered as being limited by their own positionality. Their positionality was determined by their own background. This background included their education, culture, gender and age. As holders of post graduate qualifications gained in different countries, it is possible that both advisors viewed the data through very different lenses compared to undergraduate students studying abroad. Both advisors may have generalised from their own experiences of being Chinese in two different regions to cover the regions from which the students in the sample originated. As mature women who are academics in universities, their knowledge of the younger students in the sample may be predicated on their own learning experiences gained at least 10 years previously.

Impact of limitations

The limitations discussed are associated with the quantitative study. However, in this mixed methods study, the qualitative study was given dominance and provided the framework for the integration of the findings. The analysis proposed a model to explain how perceptions of multiple-choice and essay examinations impact on Chinese students' approaches to learning, study strategies, and motivation in a western university (Figure 6). It aimed to represent how the Chinese students in this study saw examination formats interacting with learning in the context of one western university.

Implications for tertiary education

While this study has some limitations and further research would be needed to explore its transferability, it also suggests some implications for tertiary teachers and for educators who work with Chinese students in a western university environment. It enables teachers to consider how Chinese students might learn in undergraduate courses in a western university and how that learning can be assessed in a way that promotes deep understanding in a course. It contributes to the internationalisation of university teaching by considering how Chinese students perceive the impact of examination formats.

This study provides evidence to support the use of multiple-choice questions that promote a deep approach to learning in examinations. Although some researchers have concluded that multiple-choice questions push students towards surface

approaches to learning (Entwistle & Entwistle, 1991; Thomas & Bain, 1984), this was not generally the case for the Chinese students in this study. Given that multiple-choice questions can control for writing ability (Fellenz, 2004) and lower anxiety (Zeidner, 1987), multiple-choice questions could contribute to an equitable means of assessment for Chinese students in western universities provided that three conditions are met. These are:

- Multiple-choice questions are constructed to test deep knowledge and require understanding as part of the constructive alignment of the course objectives, teaching and assessment within a course;
- The specific multiple-choice questions are not predictable because they have been recycled from previous examinations papers;
- Multiple-choice questions are also used as formative assessment opportunities that enable students to align their perceptions of the format of the examination questions with the need for a deep approach to learning.

These three conditions allow for the process of *Calculating* to align perceptions with the actual demands of the examination questions.

The Chinese students in this study reported a need for a deep understanding of the requirements of essay questions in examinations. This could be gained through the process of formative assessment of essay tasks throughout a course. Formative assessment feeds the process of *calculating*, providing opportunities for self monitoring, and feedback. Giving multiple opportunities for high quality formative feedback on essay questions written under examination conditions is an expensive process if there are large classes because it can involve staff time. While computer assisted grading may increase the reliability of this process (Brown, 2009), texts that are handwritten under examination conditions may need to be converted to a digital form so that computer assisted grading can take place. This strengthens the argument for the inclusion of multiple-choice questions in examinations for large classes that include Chinese students.

Those students who report a lower level of achievement seem reluctant to relinquish strategies that they had brought with them from their previous education. Other students who use learning strategies such as mind-mapping are able to combine deep strategies for understanding and using discipline-specific language. There also appear to be links between memorisation and plagiarism for Chinese students in examinations. This is a pedagogical issue (Carroll, 2009) that may require specialist

teaching skills for tertiary educators to assist Chinese students to navigate issues of voice and identity in their writing within a discipline. Leask (2006) advocates staff development, the use of teaching teams with different areas of expertise, and reflection as a means of developing tertiary teachers. When teachers become intercultural learners themselves and promote intercultural learning among their students, Chinese students may have more ways to become members of the communities of practice of a discipline through having their prior knowledge valued and by being able to understand and use discipline-specific language.

Implications for my work across cultures with teachers

This research has contributed to my intercultural learning as a teacher in a faculty of education. It reinforces the need for reflective practice and for improving my own practices as a teacher through continued research.

As a teacher who is responsible for teaching and assessing Chinese student teachers and Chinese teachers, I need to be cognisant of the power that perceptions of assessment have on learning for this group of students. The cue-seeking strategies can be harnessed to engage students in deep learning, provided that the assessment is constructively aligned with other aspects of the course. If time and resources are provided, Chinese students will collaborate with peers to use the process of *calculating* to further their individual understanding through a process of group study.

Strategies that are appropriate for Chinese student teachers studying in New Zealand will not necessarily transfer back to the student teachers' home countries where the assessment requirements may drive different combinations of memorisation and understanding. Hence, student teachers and experienced teachers who are participants in short immersion courses in New Zealand often view teaching strategies from New Zealand as unable to be used in schools in their home country. Conversely, Chinese student teachers who are being prepared for teaching in New Zealand require support to understand aspects of New Zealand students' assessment careers and the strategies that New Zealand students have.

The process of being educated by being immersed in a different culture and language necessitates fluid identities and drives personal transformation (Rizvi, 2000). Assessment methods are part of engaging Chinese students deeply in this process, provided there is congruence between the students' perceptions of the assessment and types of assessment that reward deep approaches to learning.

Areas for further research

Students' perceptions of different examination formats may be influenced by their previous learning careers, in particular, their assessment careers. Although pressures of staff time and money may contribute to the choice of different assessment formats within universities, course designers may need to be aware of how these assessment formats affect the learning of specific cultural groups.

This study has focused on Chinese students. The process of internationalisation has created multicultural classrooms. Replication of the quantitative survey with a large population of undergraduates with different linguistic and cultural backgrounds, including students across different disciplines, years of study and previous educational histories, would allow comparisons among different groups. This could assist in answering questions such as whether examination format influences the learning and motivation of students from other cultures in the same way as Chinese students, which may contribute to addressing equity issues in course design by providing a rationale for a range of assessment formats and incorporating processes for making information about assessment more transparent for students, especially for those students who have diverse assessment careers. The larger sample would also permit comparisons among groups of students who were at different stages of study at university. This could provide insight into how students perceive the format of assessment interacting with the nature of knowledge and language within the specific discipline. Comparisons among students studying in different disciplines could provide a rationale for the use of examination formats within specific disciplines and courses and contribute to the process of constructive alignment of course outcomes, teaching methods and assessment promoted by Biggs (2003).

This study has highlighted the power of formative assessment for learning for EAL students who may have different educational backgrounds to the majority of students. Further research on the use of assessment for learning in undergraduate courses and whether it contributes to approaches to learning would enable course designers to make decisions about if and how it should be incorporated in courses. Too much assessment for learning may be viewed by EAL students as too high a workload and may promote a surface approach to learning (Nijhuis, Segers, & Gijsselaers, 2005). However, there is little evidence as to what students consider too much assessment.

My study indicated a link between Chinese students' perceptions of their English language ability and their use of different types of memorisation for essay examinations. Further research is needed to establish the nature of this link. This would contribute to the body of literature that is developing about the types and purposes of memorisation for different cultural groups.

Chinese students' perceptions of the part that language plays in the grading of essays in examinations could be compared to markers' perceptions of the part that language plays in the grading of essays in examinations. This would provide information about the match between student and staff perceptions of grading criteria. These perceptions may contribute to approaches to learning, especially for the students who lack confidence in their English language proficiency and who may resort to rote memorisation to support their learning.

As the students in tertiary education become more diverse, there is a need to support linguistically diverse students in the development of discipline-specific language within the structure of courses as well as providing additional support outside courses. While this study considered equity issues for the format of examinations, research on other aspects of teaching these students at tertiary level is also needed to address equity issues such as the nature of the interaction between domestic students and international students so that all students can benefit from the process of internationalisation.

Concluding statement

In this study, I have endeavoured to contribute to the area of the teaching and learning for Chinese students in English medium universities by considering how the students' perceptions of two different formats of questions in examinations affect their approaches to learning, study strategies, motivation and achievement. By listening carefully to the voices of Chinese students, through both quantitative and qualitative data gathering methods together with literature from a range of fields, I have been able to theorise the complexity of factors that impact on the students' perceptions of these examination formats.

One student commented in an email after his interview that the data gathering interview had enabled him to know himself better as a student and a person. This is also true for me as a researcher and teacher through engaging in this study.

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Appendices

Appendix A: Personal statement

Cross cultural experience teaching in schools

I have spent 12 years of my life living in north Asia, in particular, China, Korea and Japan. I have built on my experience as a teacher in New Zealand by teaching in international and local schools in these countries. Each sojourn of between two to five years in Asia has been interspersed with time in New Zealand. While in Asia, I could be regarded as an outsider looking into a culture through the lens of my own acculturation processes. This impacted on my professional life by providing an impetus enhance my teaching qualifications. I began as teacher of science and economics. During a period in New Zealand after living in Korea and Japan, I retrained as a teacher of English to speakers of other languages. This qualification enabled me to work with Asian students in New Zealand secondary schools. While doing this, I was placed in a position of an insider within a culture with a professional role of facilitating international, migrant and refugee students in their acculturation process. These intercultural experiences which also included raising my own children in north Asia provided me with an opportunity for critical reflection and awareness and this promoted my own personal and professional growth.

I have had a window into Chinese students' educational experiences by travelling regularly each year since 1979 in the North Asia region, visiting universities and colleges of education and observing in classrooms. This has enabled me to glimpse how changing social, political and economic factors impact on the experiences of learners in classrooms in Asia. These include the implementation of new curricula, resourcing in schools including textbooks and technology, the expectations of parents and the effects of internationalisation and professional development for teachers.

Cross cultural experience as an educator of teachers

During my career in higher education, I have taught 12 groups of teachers or student teachers from mainland China and Hong Kong who have come to New Zealand for professional development in immersion courses. The participants in these courses ranged from 23 to 54 years old and came from four different regions. This close contact with the lives of the course participants allowed me to understand that intracultural differences are as wide as intercultural differences. At the same time, to ignore culture as a teacher does not allow me to fully acknowledge and draw on a learner's prior experience.

Research approaches brought from my previous education

With a science background from my bachelor's degree in the early 1970s, I was familiar with positivist approaches. My masters degree in applied linguistics showed me the role of qualitative research in expanding knowledge and the key role that language could play in the processes of learning. By studying discourse analysis and pragmatics, I began to recognise how culture was related to discourse communities. A mixed methods study enabled me to combine approaches that I had brought with me from my previous education. I was able to see value in both quantitative and qualitative methods.

Appendix B: Participant characteristics (Quantitative)

Gender

	Frequency	Percent
Female	49	52.7
Male	44	47.3

Degree that the participants were studying

	Frequency	Percent
Commerce and Administration	52	55.9
Arts	16	17.2
Science	6	6.5
Other	19	20.4

Study in New Zealand prior to entering an undergraduate programme

	Frequency	Percent
None	18	19.4
High school	35	37.6
Language school	9	9.7
University preparation or foundation courses	20	21.5
NZDip Bus	7	7.5
Other	4	4.3

Appendix C: Survey

What do Chinese students think about assessment, study behaviours and motivation?

Part one: Finding out about your motivation

Please check the number that you think most applies to you.

1. In my course, getting good grades is the main goal.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

2. It is important to me that I learn a lot of new concepts while at university.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

3. One of my goals is to look clever compared to my classmates.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

4. My family want me to understand the important ideas in my course, rather than worrying about my grades.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

5. It is important to me that I thoroughly understand my course work.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

6. It's important to me that other students in my course think I am good at my course work.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

7. One of my goals in my course is to learn as much as I can at university.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

8. It is important to me that I don't make mistakes in front of other people in my course.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

9. In my course, trying hard is very important.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

10. In my course, it is important not to do worse than other students.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

11. In my course, how much I improve is very important.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

12. One of my goals is to show others that university work is easy for me.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

13. One of my main goals is to avoid looking like I am having difficulty with my course work.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

14. It is important to me that I improve my skills at university.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

15. In my course, getting the right answers is important.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

16. In my course, showing others that I am not bad at course work is really important.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

17. I can do almost all academic work if I do not give up.

Never true of me		Sometimes of me		Always true of me
1	2	3	4	5

18. One of my goals is to show others that I am good at my course work.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

19. I can master the skills taught at university.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

20. In my course, it's very important not to look foolish.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

21. In my course, really understanding the content is the main goal.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

22. In my course, it is okay to make mistakes as long as I am learning.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

23. In my course, one of the main goals is to avoid looking like I am struggling with academic work.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

24. My family want me to do my best at university.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

25. In my course, it's important to get high scores in assessment tasks.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

26. One of my goals is to master a lot of new skills at university.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

27. Even if the course work is hard, I can learn it.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

28. It's important that I don't look stupid in my course.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

29. I can do even the hardest work in this course if I try.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

30. My family just want me to do more than just enough work to pass at university

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

31. It's important to me that my lecturers don't think I know less than others in the course.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

32. My family want me to do challenging course work even if I make mistakes.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

33. In my course, learning new ideas and concepts is very important.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

34. One of my goals is to keep others from thinking that I am not smart in my course.

Not at all true of me		Sometimes true of me		Always true of me
1	2	3	4	5

35. In my course, it is important to understand the work, not just memorise it.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

36. I am certain I can work out how to do the most difficult academic work.

Never true of me		Sometimes true of me		Always true of me
1	2	3	4	5

37. It is important to me that I look intelligent compared to others in my course.

Not at all true of me		Sometimes true of me		Always true of me
1	2	3	4	5

Part two: How do different types of assessment affect your motivation and study habits?

This section has questions about your usual way of studying for multichoice assessments. Imagine you are studying for an examination with multichoice questions in it. Tick the best response for you for each question. Please answer all the questions.

38. I feel a deep personal satisfaction when I studying for multichoice examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me
1	2	3	4	5

39. I have to do extra work on a topic to form my own conclusions when I am studying for multichoice examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me.
1	2	3	4	5

40. I only want to do enough work to pass when I am studying for multichoice examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me.
1	2	3	4	5

41. I only study the information given out in class or in the course outlines when I am studying for multichoice examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me
1	2	3	4	5

42. I think most topics can be highly interesting when I study them seriously for multichoice examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me
1	2	3	4	5

43. I spend extra time trying to find out more about related topics when I am studying for multichoice examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me
1	2	3	4	5

44. I keep my work to a minimum because studying is not very interesting when I am preparing for multichoice examinations.

Never or rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

45. I learn some things by heart, by going over and over them, until I remember them even if I do not understand, when I am studying for multichoice examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me
1	2	3	4	5

46. I think that studying academic topics can sometimes be exciting when I am preparing for multichoice examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

47. I test myself on important topics until I understand them completely when I am studying for multichoice examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

48. I can pass most assessments by memorising key sections rather than trying to understand them when I am studying for multichoice examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

49. I do not think it is necessary to do more than what the lecturers specifically set when I am studying for multichoice examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

50. I work hard in my studies because I find the material interesting when I am studying for multichoice examinations.

Never or rarely true of me		True of me about half the time		Always or almost always true of me
1	2	3	4	5

51. I spend a lot of my free time finding out more about interesting topics that have been discussed in classes when I am studying for multichoice examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

52. I just need a brief overview because studying topics in depth confuses me and wastes time when I am preparing for multichoice examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

53. I think that lecturers should only expect me to spend time studying material that I know will be examined when I am preparing for multichoice examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

54. I come to most classes with questions that I want answered when I am preparing for multichoice examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me
1	2	3	4	5

55. I look at most of the suggested readings that go with lectures when I am studying for multichoice examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

56. I do not learn things that are unlikely to be in the examination when I am studying for multichoice examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me.
1	2	3	4	5

57. I think that the best way to prepare for assessments is to try to remember answers to likely questions when I am studying for multichoice examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me.
1	2	3	4	5

This section has questions about your usual way of studying for essay assessments. Imagine you are studying for an examination with essay questions in it. Tick the best response for you for each question. Please answer all the questions.

58. I feel a deep personal satisfaction when I am studying for essay examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me.
1	2	3	4	5

59. I have to do extra work on a topic to form my own conclusions when I am studying for essay examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me.
1	2	3	4	5

60. I only want to do enough work to pass when I am studying for essay examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me.
1	2	3	4	5

61. I only study the information given out in class or in the course outlines when I am studying for essay examinations.

Never or only rarely true of me	True of me about half the time			Always or almost always true of me.
1	2	3	4	5

62. I think that most topics can be interesting once I study them seriously when I am studying for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

63. I spend extra time trying to find out more about related topics when I am studying for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

64. I keep my work to a minimum because studying is not very interesting when I am preparing for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

65. I learn some things by heart, by going over and over them, until I remember them even if I do not understand, when I am studying for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

66. I think that studying academic topics can sometimes be exciting when I am preparing for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

67. I test myself on important topics until I understand them completely when I am studying for essay examinations.

Never or only rarely true of me		Never or only rarely true of me		Always or almost always true of me.
1	2	3	4	5

68. I can pass most assessments by memorising key sections rather than trying to understand them when I am studying for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

69. I do not think it is necessary to do more than what the lecturers specifically set when I am studying for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me
1	2	3	4	5

70. I work hard at my studies because I find the material interesting when I am studying for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me
1	2	3	4	5

71. I spend a lot of my free time finding out more about interesting topics that have been discussed in classes when I am studying for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me
1	2	3	4	5

72. I just need a brief overview because studying topics in depth confuses me and wastes time when I am preparing for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

73. I think that lecturers should only expect me to spend time studying material that I know will be examined when I am preparing for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me
1	2	3	4	5

74. I come to most classes with questions that I want answered when I am preparing for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

75. I look at most of the suggested readings that go with lectures when I am studying for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me
1	2	3	4	5

76. I do not learn things that are unlikely to be in the examination when I am studying for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me
1	2	3	4	5

77. I think that the best way to prepare for assessments is to try to remember answers to likely questions when I am studying for essay examinations.

Never or only rarely true of me		True of me about half the time		Always or almost always true of me.
1	2	3	4	5

What do Chinese students think about assessment, study behaviours and motivation?

Part Three: How do you usually study for different types of assessment?

78. Write some ways you study for essay examinations.
79. Write some ways you study for multichoice examinations.
80. Do you prefer multichoice examinations or essay examinations?

Essay examinations

Multichoice examinations

81. Why do you prefer essay examinations or multichoice examinations?
82. How did you choose your course and the institution where you are studying?

Part four: Information about you

83. My degree will be in
- B Applied Science
 - B Architecture
 - B Arts
 - B Building Science
 - B Commerce
 - B Commerce and Administration
 - B Design
 - B Engineering
 - B Information Technology
 - B Law
 - B Music
 - B Science
 - B Tech
 - B Tourism Management
 - Other – please describe
84. My home country is
- Hong Kong
 - Taiwan
 - Mainland China
 - Singapore
 - Other – please list

85. How long have you been studying in your degree programme at this university?

Less than a year

Between one and two years

Between two and three years

More than three years

Foundation and less than a year as an undergraduate

Foundation and then between one and two years as an undergraduate

Foundation and then between two and three years as an undergraduate

Foundation and then more than three years as an undergraduate

Foundation and then more than three years

Overseas twinning programme and then less than one year

Overseas twinning programme, EPP and then less than one year

Overseas twinning programme, EPP and then between one and two years

Overseas twinning programme, EPP and then between two and three years

Overseas twinning programme, EPP and then more than three years

Please describe any other previous university study:

86. Did you do any other study in New Zealand before you started at university?

None

High school (secondary school) Year 13

High school (secondary school) Year 12 and 13

High school (secondary school) Year 11, 12 and 13

Language school – less than a year

Language school – more than a year

Foundation courses or university preparation courses – one semester

Foundation courses or university preparation courses – more than one semester

Foundation courses or university preparation courses – two semesters or more

Please describe any other study not listed

87. Gender

Male

Female

88. How would you classify your achievement so far at university?

Mostly As

Mostly Bs

Mostly Cs

Mostly below C

Other: please explain

What do Chinese students think about assessment, study behaviours and motivation?

89. Are you willing to participate in a 45 minute interview either by phone, on line or a meeting?

If you are willing to participate in an interview a separate information sheet and consent form will be provided and you may change your mind before the interview.

Yes

No

90. If you are willing to be interviewed, please provide your email address here and I will contact you.

91. Please provide your email address so that you can have a one in twenty chance of winning a \$20 gift voucher for a Chinese restaurant.

92. If you would like to receive a summary of the data from this survey, please enter your email address here.

What do Chinese students think about assessment, study behaviours and motivation?

Thank you for taking the survey. I appreciate the time that you have taken to help with this research. I hope that I will have the opportunity to talk with you in person. Please feel free to email me.

Carolyn

Carolyn.tait@vuw.ac.nz

Scales with corresponding items

Adapted PALS

Personal achievement goal orientations

Mastery goal orientation

2+5+7+14+26

Performance approach goal orientation

3+6+12+18+37

Performance avoidance goal orientation

13+28+31+34.

Perceptions of Classroom goal structure

Classroom mastery goal structure

9+11+21+22+33

Classroom performance approach goal

1+15+25

Classroom performance avoidance goals

8+10+16+20+23

Academic efficacy

17+19+27+29+36

Family Mastery Goals

4+24+30+32

Adapted SPQ Version One

Essay examination scenario

Surface approach = surface motives + surface strategies when studying for essay examinations

Surface motives

40+44+48+52+56

Surface strategies

41+45+49+53+57

Deep approach = deep motives + deep strategies when studying for essay examinations

Deep motives

38+42+46+50+54

Deep strategies

39+43+47+51+55

Multi-choice examination scenario

Surface approach = surface motive + surface strategy when studying for multi-choice examinations

Surface motive

60+64+68+72+76

Surface strategies

61+65+69+73+78

Deep approach = deep motives + deep strategies when studying for multi-choice examinations

Deep motive

58+62+66+70+74

Deep strategies

59+63+67+71+75

Appendix D: Interview Questions

1. Tell me about studying in NZ?
(What course are you doing? How is it different from back home? How did you choose which course to study? What makes you want to study?)

2. Tell me what you think about exams that have multichoice questions?
(How do you prepare for them? Do multichoice questions motivate you to study – why/ why not)

3. What do you think about essays as assessments?
(How do you prepare for them? Do they motivate you to study – why/why not)

4. Tell me about how you study (in classes – outside classes)

5. What motivates you to achieve? (How important are family expectations, doing your best even though study may be difficult, getting good grades, knowing you can get a good job.)

6. What does “achievement” mean to you?

Appendix E: Ethical procedures



Information for you about the survey: Chinese Students' Perception of Assessment and how that Affects their Motivation to Learn, Study Habits, Academic Engagement, and Achievement Outcomes

Researcher: Carolyn Tait: School of Primary and Secondary Teacher Education, Victoria University of Wellington

I am a PhD student at Victoria University of Wellington. My thesis is designed to investigate how Chinese university students in New Zealand perceive the impact of selected assessment practices on their motivation to learn, study habits, academic engagement, and achievement outcomes. This information could help universities in New Zealand design courses and assessments.

The survey takes 20 minutes to complete. At the end of the survey, you will be asked if you would be willing to be interviewed either in-person or online. If you are willing to be interviewed, you will be provided with a further information sheet and consent form relating specifically to the interview.

Participation is voluntary and all research findings will be put together and reported on an anonymous basis. Your name will not be revealed and it will not be possible for you to be identified personally. There is no penalty for not participating or for withdrawing from participation at any stage. Your participation or non participation will not affect your university grades in any way. Should you feel that you wish to withdraw from the study, you may do so without question by telling me before 1 January 2009.

Responses will form the basis of my thesis which will be submitted for marking to the Faculty of Education and deposited in the university library. Articles from this may be submitted for publication in academic journals. Your identity will be safeguarded and all material will be kept confidential. No other people beside my supervisors and my two cultural advisors will see the information. The two cultural advisors will help me interpret the data in the context of Chinese students in New Zealand. They have also agreed to keep the data confidential. All data collected will be destroyed after 1 year after the completion of the study. If you agree to participate you have the following rights -

- *to decline to answer any particular question;*
- *to withdraw from the study prior to 1 January 2009;*
- *to ask any questions about the study at any time during participation;*
- *to provide information on the understanding that your name will not be used unless you give permission to the researcher;*
- *to be given access to a summary of the study findings when it is concluded if you wish. This will be sent to you by email.*

Completion of the survey on line implies that you consent to participating in the survey.

This project has been reviewed and approved by the Victoria University College of Education Ethics Committee: Application AARP SPSTE/2007/36 If you have any questions about this project or you would like to receive further information please contact me at Carolyn.tait@vuw.ac.nz, telephone 463 9590 or my supervisors, Professor Luanna Meyer at luanna.meyer@vuw.ac.nz, telephone 463 9598 and Dr David Pauleen at david.pauleen@vuw.ac.nz , telephone 463 6886.



**Information Sheet for Participants in a Study of Chinese Students' Perception
of
Assessment and how that Affects their Motivation to Learn, Study Habits,
Academic Engagement, and Achievement Outcomes**

Researcher: Carolyn Tait: School of Primary and Secondary Teacher Education, Victoria University of Wellington

I am a PhD student at Victoria University of Wellington. My thesis is designed to investigate how Chinese university students in New Zealand perceive the impact of selected assessment practices on their motivation to learn, study habits, academic engagement, and achievement outcomes. This information could help universities in New Zealand design courses and assessments.

When you volunteer to participate, you will be asked to participate in an interview either face to face, by email or through discussion on line using a medium such as MSN Messenger. The interview will take 45 minutes. Participation is voluntary and all research findings will be put together and reported on an anonymous basis. Your name will not be revealed and it will not be possible for you to be identified personally. There is no penalty for not participating or for withdrawing from participation at any stage. Your participation or non participation will not affect your university grades in any way. Should you feel that you wish to withdraw from the study, you may do so without question at the end of the survey or at the end of the interview by telling me.

Responses will form the basis of my thesis which will be submitted for marking to the Faculty of Education and deposited in the university library. Articles from this may be submitted for publication in academic journals. Your identity will be safeguarded and all material will be kept confidential. No other people beside my supervisors and my cultural advisor will see the information. All data collected will be destroyed after 1 year after the completion of the study.

If you agree to participate you have the following rights

- *to decline to answer any particular question;*
- *to withdraw from the study prior to January 1, 2009*
- *to ask any questions about the study at any time during participation;*
- *to provide information on the understanding that your name will not be used unless you give permission to the researcher;*
- *to see a transcription of your interview sent to you by email and have a chance to verify it;*
- *to be given access to a summary of the study findings when it is concluded if you wish. This will be sent to you by email..*

This project has been reviewed and approved by the Victoria University Faculty of Education Ethic Committee AARP SPSTE 2007/36

If you have any questions about this project or you would like to receive further information please contact me at **Carolyn.tait@vuw.ac.nz**, telephone 463 9590 or my supervisors, Professor Luanna Meyer at **luanna.meyer@vuw.ac.nz**, telephone 463 9598 and Dr David Pauleen at **david.pauleen@vuw.ac.nz**, telephone 463 6886.

Carolyn Tait

Consent Form for the interview

How do Chinese university students in New Zealand perceive the impact of selected assessment practices on their motivation to learn, study habits, academic engagement, and achievement outcomes?

Consent Form

- I have been read the Information Sheet relating to the nature and objects of this research project. I have understood this information.
- I understand that records of any data from me will be kept confidential and that my identity will not be revealed.
- I agree to participate in this study under the conditions set out in the Information Sheet.
- I understand that my participation is voluntary and I have the right to withdraw from the research project up to 1 January, 2009.

Full Name

I wish to receive feedback from this project by being sent a summary of the research. This will not be available until 2009.

Yes No

Email address

Signed



CULTURAL ADVISOR CONFIDENTIALITY AGREEMENT

I, will be the cultural advisor for the data collected from the research project “How do Chinese university students in New Zealand perceive the impact of selected assessment practices on their motivation to learn, study habits, academic engagement, and achievement outcomes?”

No names of individuals will be provided to me. Furthermore, all the information that is provided will be deemed confidential and I will ensure that it is not released to any third party.

Signature of the cultural
advisor.....

Date

Appendix F: Original and modified items used in the survey

PALS items original and modified

Original PALS items (Midgley et al., 2000)

Personal achievement goal orientations (Midgley et al., 2000, pp.11 -13)

Mastery goal orientation	Mean	Standard deviation
It is important to me to learn a lot of new concepts this year.	3.99	1.77
One of my goals in class is to learn as much as I can at university.	4.28	1.05
One of my goals is to master a lot of new skills this year.	4.09	1.16
It is important to me that I thoroughly understand my class work	4.07	1.09
It is important to me that I improve my skills this year.	4.34	1.02

Performance approach goal orientation	Mean	Standard deviation
It is important to me that other students think I'm good at my class work.	2.61	1.45
One of my goals is to show others that I am good at my class work.	2.69	1.43
One of my goals is to show others that class work is easy for me.	2.38	1.35
One of my goals is to look smart in comparison to the other students in my class.	2.36	1.33
It is important to me that I look smart compared to others in my class.	2.28	1.33

Performance avoidance goal orientation	Mean	Standard deviation
It's important that I don't look stupid in class.	2.41	1.40
One of my goals is to keep others from thinking I am not smart in class.	2.03	1.33
It is important to me that my lecturers do not think know less than others in my class.	2.63	1.47
One of my main goals is to avoid looking like I am having trouble doing the work.	2.52	1.38

Perceptions of classroom goal structure (Midgley et al., 2000, pp. 17-19)

Classroom mastery goal structure	Mean	Standard deviation
In our class, trying hard is very important.	4.26	1.00
In our class, how much I improve is very important.	4.26	1.02
In our class, really understanding the content is the main goal.	3.92	1.11
In our class, it is important to really understand work, not just memorise it.	4.21	1.04
In our class, learning new ideas and concepts is very important.	4.05	1.07
In our class, it is okay to make mistakes as long as I am learning.	3.98	1.14

Classroom performance approach goals	Mean	Standard deviation
In our class, getting good grades is the main goal.	3.51	1.27
In our class, getting the right answers is very important.	3.00	1.22
In our class, it is important to get high scores on tests.	3.49	1.23

Classroom performance avoidance goals	Mean	Standard deviation
In our class, showing others that I am not bad at course work is really important.	2.7	1.21
In our class, it is important to me that I don't make mistakes in front of everyone.	2.05	1.16
In our class, it is important not to do worse than other students.	2.0	1.15
In our class, it is very important not to look dumb.	2.0	1.18
In our class, one of the main goals is to avoid looking like you can't do the work.	1.91	1.12

Academic efficacy (Midgley et al., 2000 p. 20)	Mean	Standard deviation
I am certain can master the skills taught in class this year.	4.17	0.94
I am certain that I can figure out how to do the most difficult academic class work.	4.10	1.04
I can do almost all work in class if I do not give up.	4.42	0.92
Even if the work is hard, I can learn it.	4.42	0.90
I can do even the hardest work in this class if I try.	4.33	1.04

Parent mastery goals (Midgley et al., 2000 p. 29)	Mean	Standard deviation
My parents want me to spend time thinking about concepts.	3.27	1.23
My parents want my work to be challenging for me.	3.18	1.23
My parents want me to do challenging class work even if I make mistakes.	3.78	1.19
My parents want me to understand the class work, not just memorise how to do it.	4.38	0.95

Modified PALS items arranged according to scales

Personal achievement goal orientations

Personal achievement goal orientations
It is important to me to learn a lot of new concepts at university.
One of my goals in my course is to learn as much as I can at university.
One of my goals is to master a lot of new skills at university.
It is important to me that I thoroughly understand my course work
It is important to me that I improve my skills at university.

Performance approach goal orientation
It is important to me that other students think I'm good at my course work.
One of my goals is to show others that I am good at my course work.
One of my goals is to show others that university work is easy for me.
One of my goals is to look clever compared to my classmates.
It is important to me that I look intelligent compared to others in my course.

Performance avoidance goal orientation
It's important that I don't look stupid in my course.
One of my goals is to keep others from thinking I am not smart in my course.
It is important to me that my lecturers do not think know less than others in my course.
One of my main goals is to avoid looking like I am having difficulty with my course work.

Perceptions of classroom goal structure

Classroom mastery goal structure
In my course, trying hard is very important.
In my course, how much I improve is very important.
In my course, really understanding the content is the main goal.
In my course, it is important to really understand work, not just memorise it.
In my course, learning new ideas and concepts is very important.
In my course, it is okay to make mistakes as long as I am learning.

Classroom performance approach goals
In my course, getting good grades is the main goal.
In my course, getting the right answers is important.
In my course, it is important to get high scores in assessment tasks.

Classroom performance avoidance goals
In my course, showing others that I am not bad at course work is really important.
It is important to me that I don't make mistakes in front of other people in my course.
It is important to me that I don't make mistakes in front of other people in my course.
In my course, it is very important not to look stupid.
In my course, one of the main goals is to avoid looking like I am struggling with academic work.

Academic efficacy
I can master the skills taught at university.
I am certain that I can work out how to do the most difficult academic work.
I can do almost all academic work if I do not give up.
Even if the course work is hard, I can learn it.
I can do even the hardest work if I try.

Family mastery goals
My family want me to do my best at university.
My family just want me to do more than just enough work to pass at university.
My family want me to do challenging work even if I make mistakes.
My family want me to understand the important ideas, rather than worrying about my grades.

R-SPQ-2f

Original R-SPQ-2f arranged according to scales

Main scale scores are deep and surface approaches to learning.

Deep approach

Deep approach equals the sum of the items for deep motives and deep strategies scale

Deep motives

1. I find that at times studying gives me a feeling of deep personal satisfaction.
2. I feel that any topic can be highly interesting once I get into it.
3. I find that studying academic topics can at times be as exciting as a good novel or movie.
4. I work hard at my studies because I find the material interesting.
5. I come to most classes with questions in mind that I want answering.

Deep strategies

1. I find that I have to do enough work on a topic so that I can form my own conclusions before I am satisfied.
2. I find most new topics interesting and often spend extra time trying to obtain trying to obtain more information about them.
3. I test myself on important topics until I understand them completely.
4. I spend a lot of my free time finding out more about interesting topics which have been discussed in different classes.
5. I make a point of looking at most of the suggested readings that go with the lectures.

Surface approach equals the sum of the items for surface motives and surface strategies.

Surface motives

1. My aim is to pass the course while doing as little work as possible.
2. I do not find my course very interesting so I keep my work to the minimum.
3. I find I can get by in most assessments by memorising key sections rather than trying to understand them.
4. I find it not helpful to study topics in depth. It confuses and wastes time, when all you need is a passing acquaintance with topics.
5. I see no point in learning material which is not likely to be in the examination.

Surface strategies

1. I only study seriously what is given out in class or in the course outlines.
2. I learn some things by rote, going over and over them until I know them by heart even if I do not understand them.

3. I generally restrict my study to what is specifically set as I think it is unnecessary to do anything extra.
4. I believe that lectures shouldn't expect students to spend significant amounts of time studying materials everyone knows won't be examined.
5. I find the best way to pass examinations is to try to remember answers to likely questions.

Adapted R-SPQ-2f for studying for examinations with multichoice questions

Deep approach

Deep motives

1. I feel a deep personal satisfaction when I studying for multichoice examinations.
2. I think most topics can be highly interesting when I study them seriously for multichoice examinations.
3. I think most topics can be highly interesting when I study them seriously for multichoice examinations.
4. I work hard in my studies because I find the material interesting when I am studying for multichoice examinations.
5. I come to most classes with questions that I want answered when I am preparing for multichoice examinations.

Deep strategies

1. I have to do extra work on a topic to form my own conclusions when I am studying for multichoice examinations.
2. I spend extra time trying to find out more about related topics when I am studying for multichoice examinations.
3. I test myself on important topics until I understand them completely when I am studying for multichoice examinations.
4. I spend a lot of my free time finding out more about interesting topics that have been discussed in classes when I am studying for multichoice examinations.
5. I look at most of the suggested readings that go with lectures when I am studying for multichoice examinations.

Surface approach

Surface motives

1. I only want to do enough work to pass when I am studying for multichoice examinations.
2. I keep my work to a minimum because studying is not very interesting when I am preparing for multichoice examinations.
3. I can pass most assessments by memorising key sections rather than trying to understand them when I am studying for multichoice examinations.
4. I just need a brief overview because studying topics in depth confuses me and wastes time when I am preparing for multichoice examinations.
5. I do not learn things that are unlikely to be in the examination when I am studying for multichoice examinations.

Surface strategies

1. I only study the information given out in class or in the course outlines when I am studying for multichoice examinations.
2. I learn some things by heart, by going over and over them, until I remember them even if I do not understand, when I am studying for multichoice examinations.
3. I do not think it is necessary to do more than what the lecturers specifically set when I am studying for multichoice examinations.
4. I think that lecturers should only expect me to spend time studying material that I know will be examined when I am preparing for multichoice examinations.
5. I think that the best way to prepare for assessments is to try to remember answers to likely questions when I am studying for multichoice examinations.

Adapted R-SPQ-2f for studying for examinations with essay questions

Deep approach

Deep motives

1. I feel a deep personal satisfaction when I studying for essay examinations.
2. I think most topics can be highly interesting when I study them seriously for essay examinations.
3. I think most topics can be highly interesting when I study them seriously for essay examinations.
4. I work hard in my studies because I find the material interesting when I am studying for essay examinations.
5. I come to most classes with questions that I want answered when I am preparing for essay examinations.

Deep strategies

1. I have to do extra work on a topic to form my own conclusions when I am studying for essay examinations.
2. I spend extra time trying to find out more about related topics when I am studying for essay examinations.
3. I test myself on important topics until I understand them completely when I am studying for essay examinations.
4. I spend a lot of my free time finding out more about interesting topics that have been discussed in classes when I am studying for essay examinations.
5. I look at most of the suggested readings that go with lectures when I am studying for essay examinations.

Surface approach

Surface motives

1. I only want to do enough work to pass when I am studying for essay examinations.
2. I keep my work to a minimum because studying is not very interesting when I am preparing for essay examinations.
3. I can pass most assessments by memorising key sections rather than trying to understand them when I am studying for essay examinations.

4. I just need a brief overview because studying topics in depth confuses me and wastes time when I am preparing for essay examinations.
5. I do not learn things that are unlikely to be in the examination when I am studying for essay examinations.

Surface strategies

1. I only study the information given out in class or in the course outlines when I am studying for essay examinations.
2. I learn some things by heart, by going over and over them, until I remember them even if I do not understand, when I am studying for essay examinations.
3. I do not think it is necessary to do more than what the lecturers specifically set when I am studying for essay examinations.
4. I think that lecturers should only expect me to spend time studying material that I know will be examined when I am preparing for essay examinations.
5. I think that the best way to prepare for assessments is to try to remember answers to likely questions when I am studying for essay examinations.