

**Science and Mathematics Education Centre**

**Australian based International Pathways to Higher Education: Associations  
between Learning Environment and Primary Language, Cultural Background,  
Age, Sex, Program of Study and Attitude**

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**This thesis is presented for the Degree of Doctor of Philosophy of Curtin  
University**

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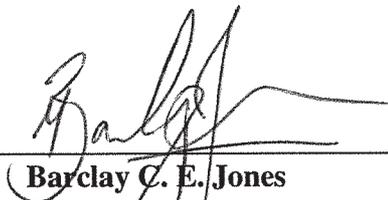
**Declaration**

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This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgement has been made.

**Signature:**



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**Date:**

**08 December 2014**

## Abstract

Australian based international pathway colleges are those educational institutions that are Australian owned and either located in Australia or offshore. These educational institutions provide an educational pathway or metaphorical 'bridge' for students to enter into either an Australian or offshore university program.

The main objective of this study was to develop and validate a modified student form of the Questionnaire on Teacher Interaction (QTI) for use within the Australian based international pathway learning environment. A large international sample was used to investigate associations between student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment and student Cultural Background, Sex and Age, Program of Study and Attitude variables.

Consistent with other current learning environment research, this study utilised both quantitative and qualitative research methods during the pilot and main study. Given the unique nature of the Australian based international pathway learning environment in this study, the sample was collected via convenience sampling. The quantitative tool used within this study, termed the *International Questionnaire on Teacher Interaction* (IQTI), consisted of nine introductory questions relating to the variables of Cultural Background, Age and Sex, Program of Study; a modified student version of the 48 item short Australian form of the *Questionnaire on Teacher Interaction* (QTI); and an 'attitude to class' scale based on the Test of Science Related Attitudes (TOSRA). Qualitative information through student feedback and researcher lived experience within the international pathway learning environment provide support to the findings of this study.

Major findings from the study suggest that the modified version of the QTI is a valid and reliable tool for use within the Australian based co-educational international pathway learning environment. The study also suggests that associations do exist between grouped international student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment based upon Cultural Background, Age and Sex, Program of Study and Attitude.

This research represents one of few studies globally that has investigated teacher-student interactions within an international pathway learning environment. Educators may benefit from this study as it provides information relating to the dynamics of the international pathway environment and may allow development and encouragement of a more positive and productive international pathway experience.

## **Acknowledgements**

This thesis has been a journey: A journey of discovery, self-fulfilment, challenges, personal development, learning, networking, friendships, professionalism, integrity, altruism and future. On this journey I have met with, worked with some amazing people, developed fantastic friendships and had some wonderful experiences.

First of all I would like to thank my supervisor Dr Anthony Rickards who has been the constant and steadfast friend and peer that I have needed to complete this thesis. During this study our paths have crossed and separated on a number of occasions as my career has taken me to other countries, only to meet again at critical times of the study, and for us to continue with new knowledge and experiences.

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To all the staff at the Science and Mathematics Education Centre at Curtin University for always being there and assisting me no matter how far away I was, or how difficult the request may have been. To my various employers over the years in Australia and abroad I would like to thank you for your support and cooperation in completing my studies. Thank you to the Australian government for the opportunity to complete my PhD under a tuition waiver. Free education is a privilege in these times for which I am greatly appreciative. Thanks must also go to the students across the globe that participated in this study. Without student participation and feedback this thesis would not exist, and for this I am truly grateful.

To my wife Melissa for supporting my decision to take on a PhD in Australia, moving with me from Australia to Kenya, having our handsome first child Kayden in Kenya, then picking up and moving our life to Portugal for four months followed by two years in the United Kingdom in which we finally travelled back to Australia

while 30 weeks pregnant. All the time you have been my conscience and support to continue my studies while maintaining full-time senior academic appointments and family commitments; for which without you I am not sure I could have made it to the end. We also welcomed to the world our beautiful daughter Laylah Grace who has made the difficult time of moving back to Australia something to remember.

During this time my family has experienced the joys and excitement of travelling, meeting new people, seeing new places and living amazing experiences and immersing ourselves in new cultures. We have also had to cope, grow and mature with the difficult, upsetting and disappointing experiences of living away from family, the hardships of third world countries, and the loss of our beloved family dog Kera in Portugal. We have also had to endure the financial burden of constant travel, the stress and planning of moving countries, and the difficult decision to return to Australia to bring up our children and be close to family affected by cancer. Mum...we hope the cancer stays away long enough for you to enjoy your grandkids.

In many ways this thesis has become an expression of me and my families' experiences of working across the government and private education over the years. With this thesis I have grown and developed and come to appreciate life for what it is, and understand some of the world and the environment from which the students within this study come from. At times the study has become disjointed as I have relocated to new countries, and I have experience the frustrations that come with this, but it is through this journey that I have experienced and lived a more fulfilling life.

This thesis represents my persistence to succeed and see this project to its completion. This thesis presents itself as a challenge to balance personal, work, family and study commitments, to experience what life has to offer, and to prove to myself that a high school 'average' can achieve the highest academic accolade in a PhD. But most importantly this thesis has challenged me to reflect on my own learning and life experiences, to understand the unique perspectives of students and to present a piece of literature which may lead to a more positive learning environment for students which is conducive to their needs and allows them to succeed.

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# Chapter One

## Motivation and Foundation of the Study

*“We choose to go to the moon. We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win, and the others, too”.*

*(J.F. Kennedy: September 12, 1962)*

### 1.1 Introduction and overview

This thesis is comprised of seven chapters, a reference list and a number of supporting appendices.

Chapter one enables the reader to understand the history, complexity and dynamics of the international pathway education sector in Australia and abroad. An auto-ethnographic perspective is used within this chapter to help define the history, rationale, objectives and methodologies used within this study. The chapter will also introduce literature that contextualises and describes the environment in which this study is conducted.

The second chapter of this thesis provides a review of literature which is relevant to this study. The chapter starts by describing the circumstances and milestones which have led to the emergence of the international education sector in Australia. The Australian based international pathway to higher education, which is used in this study and is a subset of the international sector in Australia is also referenced and explained using relevant literature. The chapter also explores the economic and social trends which impact on the international education sector in Australia. Chapter two provides a review of past and present literature which describes the theoretical and practical applications of learning environment research. This review of literature particularly focuses upon teacher-student interpersonal behaviour research with an in-depth review of the *Questionnaire on Teacher Interaction (QTI)*

and a review of the *Test of Science Related Attitudes* (TOSRA) and the seven item 'attitude to class' scale as these form critical elements of this study.

Chapter three discusses the research methodologies used in this study. A mixed method approach to research design and data collection was selected which involved both quantitative and qualitative data being collected, analysed and interpreted. The sample population, the measures used, research questions and their rationale for selection are also discussed within chapter three. The chapter also describes the selection and development of a modified version of the Australian short form of the QTI used within this study, the nine introductory questions, and an unchanged attitude scale which together form the *International Questionnaire on Teacher Interaction* (IQTI) used in this study.

Results and analysis of quantitative and qualitative data from the pilot and major components of this study are presented in chapter four. This information is used to inform the validity and reliability of the modified version of the Australian short form of the QTI and the attitude scale components of the ITQI.

Chapter five presents the analysis of quantitative data presented in chapter four which has been grouped upon the nine introductory questions of the IQTI tool. Student qualitative data and researcher observations, as an embedded observer, have been used to further investigate associations in student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment and student Cultural Background, Sex and Age, Program of Study and Attitude.

Chapter six brings together the quantitative and qualitative information of this study, compares the outcomes to previous research, and formulates the findings from this study.

Chapter seven presents the study's conclusions by systematically addressing the research questions in this study against the findings from this study. This final chapter also discusses the implications of, and recommendations for, further research that have resulted from this study. A list of references and appendices are also

presented.

## **1.2 Motivation for the thesis**

This chapter begins with a description of my journey and the synchronous development of this study. The unique nature of the study population in the Australian based international pathway environment is described using an auto-ethnographic approach of experiences prior to and during the study. Relevant literature is progressively introduced to contextualise and support the description of this unique environment in which this study is situated. This builds a picture of some of the challenges that need to be faced by students and in turn represents some of the complexities in the context of this study within the under reported sector of Australian based international pathway education.

This thesis represents my enthusiastic and passionate approach to further my abilities and skills as an educator and educational administrator, with specialist skills in teacher-student interaction within an international education setting. This study presents the opportunity to better understand and reflect on the field of international pathway education and provide literature towards student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment.

The outcomes from the study seeks to provide an informed and positive learning experience for all students, and provide a mechanism to contribute knowledge to the growing industry of international education.

### **1.2.1 The development of the researcher**

My journey begins in the early 1990's where my secondary education was not an enjoyable time and where the opportunity to take subjects such as physics, chemistry and biology were not available to me due to my average grades. On reflection, these average marks were an expression of my disconnection with high school educational practices. With little or no direction after completing my secondary school education I was eventually offered a place in a vocational technical college studying applied

science.

In this vocationally orientated environment I developed a sense of enjoyment that equated to successful completion of science subjects. I realised that interest in subject matter, enjoyment and attitude to education could make a difference to a students' experience in education. A learning environment is one which is highly influential on student perceptions of teacher-student interactions, conceptualisations and one which the "classroom environment strongly influences student achievement" (Fraser, 2001, p. 4).

Enjoyment came from an exposure to a new learning environment and new teachers who enabled a student focused learning environment. Active participation by students was promoted and there was a focus on incorporating technology into the daily teaching and learning process. As a student there was a requirement to use computers to undertake learning and discovery whilst undertaking laboratory and classroom based learning. Assessment tasks were also completed electronically. Treagust, Duit and Fraser (1996) describe that the use of technologies such as computers as a teaching medium should be a gentle balance between student activities and teacher guidance.

Enthusiasm for my own education also came from an increased sense of motivation by involved and passionate teaching staff. Previous research into learning environments (Brekelmans, Levy & Rodriguez, 1993; Brekelmans, Wubbels, & den Brok, 2002; Chantavong, 2005; De Charms, 1976; Fraser & Lee, 2009; Lowe, 2004; Madu, 2010; Quek, Wong & Fraser, 2005a; Rennie, 1990, 1998; Robinson, 2003; Tulloch, 2011; Walberg & Anderson, 1968; Wubbels, Créton, Levy & Hooymayers, 1993) has suggested that teachers can be motivators as well as instructors, and also suggests that a teacher's enthusiasm for the content they teach will lead to a motivated classroom environment.

With an invigorated passion, interest, enthusiasm and success in science, I successfully completed the vocational qualification in applied science and was admitted into a University Bachelor of Science. Here I majored in Biology and later achieved a first class Honours degree in Aquaculture and Seafood Science.

During these undergraduate studies I had exposure to a range of teaching methodologies from traditional ‘chalk and talk’ to student centred experiential learning. Terms such as “liberal” (Galbrieth, 1998), “traditionalist” (Brooks & Brooks, 1999), and “constructivist” (Galbrieth, 1998; Joyce, Weil & Calhoun, 2004) are used in mainstream education literature to describe a variety of approaches taken by teachers when imparting knowledge to students.

During my undergraduate studies in the late 1990’s I observed that some students were highly receptive to ‘liberal’ teaching methodologies, while other students needed to experience, practice and interact with their learning to develop an understanding of concepts. Some educators were observed as having a range of delivery styles, and adapted education environments to better suit individuals or groups. These teachers created flexible and diverse assessment methods to give students better opportunities for success. These constructivist approaches to the teaching and learning environment used subject matter as a vehicle for interactive engagement with students. Student-orientated activities provided challenges, debate, and negotiation of ideas. Students must be weaned from their reliance on teachers’ assessment of progress and success, and this requires students to become more keenly aware of their own thinking process (Duit & Confrey, 1996).

### **1.2.2 First experience in learning environments**

It was during my honours degree studies, that for the first time, I found myself in front of a class of aquaculture students as an educator. I had no experience with teaching, and little time to spare from my studies to prepare for classes. I took a very ‘traditionalist’ approach to the teaching and learning environment as this appeared to be the easiest way to cover the unit content. This approach ensured that the information was delivered according to the learning outcomes and assessment criteria; however I realised that as a teacher I struggled to create a classroom environment that was conducive to the individual student needs. A traditional teaching approach appeared to be the only way to effectively communicate the information to the students given the seemingly enormous content of the unit and the

short period in which to achieve outcomes. I recognised that students tended to struggle to take in the content being delivered.

Ramsden (1992) argued that teachers overwhelmed by the complexity of their teaching environment do not know where to start improving. Typically teachers ask for rules to solve difficulties in which Ramsden (1992) provides advice to teachers that half the difficulty with doing things better is gaining an understanding of what the real problems are, and being aware of what we do not know.

Reflecting on the positive qualities of my own teachers, I developed an understanding of how to identify individual learning needs and to develop a variety of delivery and assessment strategies to give students the opportunities to succeed. A keen interest in the dynamics of learning environments began to emerge. When using a traditional teaching style it became apparent that there was a reduced communication efficiency occurring within the classroom. Fisher, Henderson and Fraser (1995) found that the behaviour of the teacher and the behaviour of the student influence each other within the classroom environment.

At the time, given my poor teaching knowledge and lack of teaching experience, a sense of urgency was what motivated me to change my teaching strategies. I considered the learning environment; the communications between teacher and student; the relationship and effect of teachers on students; and began to plan and develop interactive teaching sessions.

New teaching sessions were planned to involve a variety of delivery methods and technologies which might generate student interaction and response. In making these changes I found that the teaching and learning environment became more enjoyable for me as a teacher and for the students. It also appeared that student understanding and success also improved. In researching educational strategies I found that modifications that I made to my own teaching were similar to those proposed by educational leaders who advocated a 'constructivist' view (Galbrieth, 1998; Joyce et al., 2004).

I found that I immensely enjoyed the role as an educator and found a natural ability

to change the learning environment to allow students to enjoy their learning experience. It was at this time that I realised that the interactions within the classroom (teacher-student, student-student, and student-teacher) generated positive and negative perceptions and understandings of learning environment in my student population. Tobin (1996) describes learning to teach science as being best accomplished through direct experience with opportunity given to reflect critically on experience and problems.

A formal vocational assessor and verifier qualification gave me the terminology, theory and practical knowledge of teaching and learning, creating a direct interest in educational research, especially focused on student perceptions of teacher-student interactions. Through this knowledge, a clear indication of how the learning environment is defined began to emerge. Brekelmans et al. (2002) suggest that the teacher student interpersonal behaviour is an important element towards the student learning process within the classroom environment, and found that certain teacher-student relationships were more effective for increasing student achievement and attitude than other teacher-student interactions.

It was work within Access and Equity environment in later years that confronted and challenged me to consider student feelings and attitude towards education. Students enrolled in access and equity courses were typically from low socio-economic backgrounds with most having negative educational experiences. This new learning environment challenged my perceptions and knowledge of teaching and learning and required a renewed and revised non-standard approach to the learning environment. Learning with understanding involves all of cognition (thoughts), affect (feelings), and behaviours (Baird & White, 1996). Undertaking these reflective practices forms a fundamental component of self-regulation and metacognitive understanding (Baird & White, 1996; Davis, 2003).

In this new learning environment, I was able to apply new teaching and learning methodologies to the classroom learnt from my recently completed vocational assessor and verifier qualification. I was also able to assess the various impacts of these new teaching and learning methodologies on my students. Various teaching and learning methodologies and assessment strategies were employed to

suit my classroom environment which was made up of individuals from varying socio-economic, religious and cultural backgrounds. Self-reflection on my own difficulties as a learner generated an awareness and respect for the complex issues faced by students within this socio-culturally diverse learning environment. As a result I dedicated more time toward planning and developing student led activities that generated positive student/student and student/teacher interactions.

Given my limited experience at the time, there were many questions about the access and equity learning environment for which I did not have answers.

Some of these questions were:

- Has there been any research conducted into classroom dynamics, such as teacher and student behaviour, and their effects on student attitude and performance?
- How does an educator or researcher measure and improve on classroom dynamics within such a complex learning environment?
- Are there associations between student experience of the educational environment based upon cultural background, language and age?
- What effect does student attitude have on their interactions within a classroom environment?
- Do these educational environments provide an enjoyable experience?
- What could I learn as a teacher to improve my own skills to this group of students?

Over the years I would find that the pursuit to answer these questions would guide my professional and educational career and provide direction towards the research questions of this study. Later, I changed employment positions and moved into the field of international education; and in particular the international pathway environment. My work commenced in a dual role position of educator and administrator at a large Australian based international pathway education institution in Australia.

### 1.2.3 Australian based international pathways

#### *Pathways*

The term pathway is used to describe the alternative educational institutions that provide bridging programs for students to enter further education, university or employment. These students typically are people who previously would not have been able to participate in these educational settings due to sub-standard academic results.

Australian Education International [AEI] (2005b) defines study pathways which form the sample used within this study as:

“a unique feature of the Australian education system, with many international students following study pathways rather than limiting their study to a particular sector or level of the education system” (AEI, 2005b, p. 1).

Adams, Burgess & Phillips (2009) define study pathways as being a part of the Australian Qualifications Framework (AQF), with English language pathways not forming part of the national framework. Adams et al. (2009) describe that within the structural framework of qualifications, study pathways provide formal inter-sectorial linkages. It is within these inter-sectorial linkages that the sample used within this study exists.

A definition of interest is also that of an international student:

“An internationally mobile student is a student having crossed a national border in order to study or to undertake other study-related activities for at least a certain unit of a study program or a certain period of time in the country they have moved to.” (Richter & Teichler, 2006, p. 83).

This definition is of importance to this study as it best describes a majority of the sample population used within this study.

As discussed later in this chapter, literature published by authors such as Bartell (2003), Knight (1997, 1999, 2004, 2006), Leask (1999, 2004, 2006, 2009) and Krause, Hartley, James & McInnes (2005) describe a complex set of dynamics which influences the Australian international education sector. This discussion is necessary to describe the complexities of undertaking research within the Australian based international pathway learning environment.

‘International pathway education providers’ describe the institutions that provide these ‘pathway’ programs, which typically target students from overseas countries. Through my own experience, the international pathway environment is a dynamic and extremely complex learning environment. The significance of international pathway colleges is highlighted in a Western Australian Technology and Industry Advisory Council [WATIAC] (2000) report which suggests that the identification, articulation and development of appropriate pathways was a key strategy in attracting significant numbers of international students.

Through the researcher’s own experience, it was observed that each classroom within Australian based international pathway learning environment in Australia had its own idiosyncrasies that made it unique to previously experienced teaching and learning environments. Students were observed as being from numerous cultural backgrounds, varying ages and both sexes. Each student within a class could be completing the same unit as a requirement for any number of courses. Each college may accredit their own individual courses/units, may offer the same accredited courses/units across a number of campus locations, or even deliver university /courses/units under franchise or twinning arrangements. Units of a course may run within one or more classes and may have more than one teacher. Niche courses and units were observed to have only a few students, while other common subjects had class sizes up to fifty students.

From a student’s perspective, a student could be enrolled in four or five classes a week, would more than likely have each class held within a different classroom, would have a different teacher for each class and a different group of students within each class. The Australian based international pathway learning environment makes for a dynamic learning environment which does not represent other learning

environment studies where a student population remains the same based upon a classroom cohort (Brekelmans, Holvast & van Tartwijk, 1990; Brown, 1965; 1986; Créton, Wubbels, Hooymayers, 1993; Fraser & Walberg, 1991).

Within the context of this study, this same complexity was also reflected in other Australian based international pathway colleges around the world that the researcher worked within or visited. Each Australian based international pathway college was observed as having its own unique set of factors which influenced the composition of their student population.

In working within the Australian based international pathway learning environment in Australia, it was noted that the smallest classes (approximately 6 students) typically existed in design subject areas, with science and high level mathematics classes (approximately 10 -15 students) being of the next largest class size. Information Technology and Communications classes provided the next largest class sizes (20 – 25 students) with Business classes providing the largest class sizes (up to 50 students). Class size limit was also influenced by the availability of infrastructure and resources.

A relatively equal gender ratio was observed within the Australian based international pathway learning environment in Australia, however when determining the proportion of students from a particular cultural background it was noted that there were further complexities. At a college level it was observed that the student population was mainly of Asian origin with many being of Chinese citizenship. The next largest student group was from the Indian sub-continent with the remaining students being of African and Middle Eastern origin. It was also observed that this general ratio of cultural background varied across classrooms. Unique cultural observations were made in relation to course selection. Middle Eastern students appeared to be more frequently enrolled in Engineering/Science courses which were connected with scholarship programs, whilst Indonesian and Malay students enrolled more frequently in Health related courses and Chinese students were inclined to enrol in Business courses.

The age of students was anecdotally observed as being potentially influenced by a number of factors within the Australian based international pathway learning environment in Australia. These factors included the school leaving age requirements of particular countries, which meant that students from some countries were typically younger (17-18) while others were slightly older (18-19). Other students from particular regions, such as the Emirates, were mature students on scholarships, while other students from countries such as South Korea were either young (17) or older (early 20's) depending on whether they had completed military service or not. A majority of these factors appeared to be related to the citizenship requirements of the country.

During a lived experience in Kenya a new set of dynamics was encountered in an offshore Australian based international pathway college. Within this environment the subject of Design was not taught, Information Technology classes appeared to be the smallest (10 – 15 students), with Business and Communications classes being the biggest (30 students). Class sizes were again influenced by infrastructure and resource availability.

Within this offshore environment it was also noted that there was an increase of students attending unscheduled classes with a sporadic rate of student attendance. Within this Australian based international pathway learning environment in Kenya, there appeared to be gender equality however the cultural background of students was considerably different. A majority of students were of African birth but many had ancestral origins from the Indian subcontinent which allowed them to hold Indian citizenship. The researcher observed that these students were able to speak their mother tongue (typically Punjabi), the Kenyan language of Kiswahili and English. The next largest population size was the Africans of African birth and parental descent, with a majority of these students from Kenya. A small population of students were also observed from surrounding countries such as Tanzania, Somalia, Ethiopia, Uganda, and some francophone countries such as Democratic Republic of Congo. Many of these students were able to speak a number of dialects and languages in which Kiswahili and English were predominant within the classroom environment.

The nuances observed within the Australian based international pathway learning environment in relation to the study population and the classroom dynamics, cultural and language distinctions and course and unit enrolments are important factors towards determining the methodologies used within this study.

The Australian based international pathway environment, by its very nature, provides educational solutions for students with average to below average academic ability to enter universities. The pathway environment provides a metaphorical 'bridge' for students to use to enter university programs. By completing foundation qualifications students are allowed to gain matriculation into the host university system. This information is also important to this study as it seeks to investigate associations in student perceptions of teacher-student interpersonal behaviour based upon the course and subject studied by students within the Australian based international pathway learning environment.

### ***Cultural Background***

As discussed so far, the international pathway environment provides a diverse student population with a wide range of cultural, linguistic, gender, age, and course/subject related influences.

There has been extensive research (den Brok, P., Telli, S., & Cakiroglu, J., 2009; Fisher, Rickards, Goh & Wong, 1997; Hofstede, 1980; Hui & Villareal, 1989; Jegede & Okebukola, 1988; Levy, Wubbels, Brekelmans & Morganfield, 1997; Lonner, 1980; Riah, Fraser & Rickards, 1997; Rickards 1998; Waldrip & Taylor, 1995; Wubbels & Levy, 1991;) to indicate that cultural background is a key factor for determining associations in student perceptions of teacher-student interpersonal behaviour within multicultural learning environments.

Banks & McGee Banks (1989) suggest that social scientist view culture as consisting primarily of symbolic, ideational, and intangible aspects of human societies and that culture is determined by how individuals of these groups use, perceive and interpret their meaning, and collectively these perceptions are what distinguish individuals within a modern society. Banks & McGee Banks (1989) continue to reinforce that people of the same culture will interpret these values in a similar way.

Levy et al. (1997) found that Latin American students perceived the teacher as more dominant, while USA students perceived their teacher as more submissive. Fisher et al. (1997) found that Singaporean teachers were being perceived by students as more strict and Australian teachers as allowing more freedom and responsibility. Wubbels and Levy (1991) identify that Dutch teachers identified student responsibility and freedom as more important behavioural scales, whereas American teachers saw the behavioural scale of strict as more important. These and similar studies discussed in chapter two identify that students of a similar cultural background within a multicultural environment, such that exists in the Australian based international pathway environment, perceive teacher-student interactions differently.

Awareness of culturally induced behaviour, awareness of others culturally induced behaviour and the ability to explain an individual's own cultural behaviour, are three qualities which encompass cultural awareness (Tomalin & Stempleski, 1993). Tomlinson & Musuhara (2004) and Sawir (2006) suggest that an increased cultural awareness helps increase tolerance and achieve cultural sensitivity and empathy and broadens learner's minds.

Vesna (2010) argues that a group of people can proclaim itself to be a national or ethnic community based upon commonalities such as religion, ethnicity, history language and origins. This same paper presents evidence that several theorists agree that language defines most ethnicities which is inferred by the frequency of ethnicities and languages that bear the same name or designation. Vesna (2010) continues to identify that language is an not just a means of communication but also an expression of personal and ethnic identity depending upon social circumstances. An important focus of modern language education has been on cultural awareness (Shemshadsara, 2012).

Research relating to teachers of English as a Foreign language (EFL) suggests that in teaching a foreign language a teacher is also teaching a foreign culture (Englebert, 2004), and that there is a need to choose culturally appropriate teaching styles when instructing students on cultural background of language usage (Leveridge, 2008).

The literature described above suggests that cultural background may be considered

as a variable within the international pathway learning environment.

Cultural background has therefore been identified as a factor in this study and as a possible variable associated with determining student perceptions of the Australian based international pathway learning environment.

As the researcher had observed that some students country of birth differed from their country of citizenship, both of these variables were considered for this study. In reviewing cultural background, the literature identified that language may be culturally linked, however the researcher determine that language required further investigation before being considered as a variable within this study.

### *Language*

Working within the Australian based international pathway learning environment it was observed that English was a second language for almost all students. This added a new dimension to the student/student and student/teacher interactions.

A review of literature indicates that language has been recorded as an influencing factor on teacher student interpersonal behaviour within other multicultural learning environments (Ballard, 1987; Ballard & Clanchy, 1997; Levy et al., 1997; Rickards, 1998; Rickards & Fisher, 1999; Ryan & Hellmundt, 2003; Young, 1998).

When considering literature from within the English as a Second Language (ESL) sector, there are indications that language and culture are just a few of many factors that are associated with academic success (Angelova & Riazantseva 1999; Ballard & Clanchy 1997; Batorowicz 1999; Hellmundt, Rifkin & Fox 1998; Robertson et al., 2000; Stoyhoff, 1996, 1997; Tompson & Tompson 1996; Wicks 1996).

Cultural difference is also a primary factor affecting international students' success (Kirby, Woodhouse & Ma 1996; Tang, 1996; Volet, 1999; Watkins & Biggs, 1996; Weiland & Nowak, 1999), and other research indicates a focus on English language competence (Allen & Rooney, 1998; Beasley, 1990, 1997; Bretag, 2001; Chandrasegaran, 1994; Chapple, 1998; Clerehan & Crosling, 1994) is a factor associated with academic outcomes.

Hutchenson and Tse (2004) suggest that different academic skills and study approaches by students may be due to the difference in cultural and educational systems and philosophies of the countries from which the international students have come.

Sawir (2005) suggested that language difficulties in groups of international students in Australia were associated with their prior learning experience. Sawir concluded that international students were not sufficiently exposed to English language, in which didactic rather than conversational language formed language learning experiences. In addition, some learners were led to believe that English grammar was the “most important part of English language learning” (p. 577) leading to a behaviour in which they are not “able to communicate effectively, socially and academically, and the learning of conversational skills was retarded” (p.577).

Andrade (2006) suggests that lack of language proficiency may be underlying many of the problems experienced by international students and that this may be reflective of the culturally based ways students see the world, and may indicate that some international students compensate for insufficient English and socio-cultural knowledge through effort, study habits and self-help strategies.

Languages have been a focus in the literature when discussing multi-cultural learning environments as evidence in the preceding sections. It is for this reason that language has been identified in this study and as a possible variable associated with determining international student perceptions of the teacher student interpersonal behaviour within the pathway learning environment.

### ***The researcher's inquiry into the unique learning environment***

Baird and White (1996) undertook the Project for Enhanced Effective Learning, and found that a person engaged in a process of purposeful inquiry employs metacognitive strategies, and that these strategies comprise of reflection (to determine purpose) and action (to generate information). Baird and White (1996) suggested that an improved classroom environment involves both students and teacher where there is an observed need for metacognitive development in teachers before there is in students.

The Australian based international pathway learning environment challenged me as a teacher. I understood the need to further develop my skills and knowledge to work as a teacher within the complex international pathway learning environment to provide a positive experience for my students.

To further my skills and knowledge in international pathway learning environment I enrolled in postgraduate studies in Education to undertake my own metacognitive development, while the Australian based international pathway education environment provided an exposure to a previously little researched student cohort.

Based on researcher experience, these students within Australian based international pathway environment in Australia were typically from Asian countries, but also attracted other students from around the world. Böhm, Davis, Meares and Pearce (2002) state that the percentage of students in Australia from Asia in 2000 was 43% and will grow to 70% in 2025. However, as elaborated on earlier in this chapter, my experience in Kenya and the UK suggests that this trend does not necessarily exist on a global scale.

I observed that students within the Australian based international pathway education sector had little previous exposure to Western learning philosophies and environments, and this appeared to create difficulties for these international students. It was also observed that international students within the Australian based international pathway learning environment appeared to be faced with more complex issues than any other student group previously encountered in non-international pathway courses. These complexities appeared to extend from the observation that these young, culturally diverse adults were typically living and studying in a foreign country in which the language and teaching methodologies employed by lecturers within learning environment were also foreign.

Literature by Zepke, Leach and Prebble (2006) define “acculturative stress” as stress associated with indigenous and international students’ unfamiliarity with Western academic culture. A study in the United States (U.S.) by Wilton and Constantine (2003) found that Asian students reported lower levels of psychological distress than Latin American students, in which the length of stay in the U.S. was negatively

associated with acculturative distress.

Other research (Burns, 1991; Jones, Robertson & Line, 1999; McInnes, 2001; Rickards, 1998; Ryan, 2000) suggest international student traits characterised by Western and Eastern cultural groups, can account for contrasting expectations of education practice in any classroom, and for teaching and learning difficulties in some students.

Biggs (1999; 2001) suggests that these perceived difficulties or traits are a result of institutionalised stereotyping of students of Asian background. Biggs (1999) suggests that these difficulties do not exist and that this notion is expressed through the ability of students from an Asian background to continually rank in top levels of university courses.

“Although the development of the research on cross-cultural education is growing, most researches in this field only focus on the issues of language, communication, specific courses and differences in learning styles...There is little research to investigate the degree of implications on learning methodology and behaviours brought by culturally specific assumptions and situational variables.” (Lu, Chin, Yao, Xu & Xia, 2010, p. 117 - 118)

It was at this time of working as an educator and administration within the Australian based international pathways education sector in Australia that I developed a passion and energy to further investigate this particular environment.

While teaching statistics to a majority Asian (China, Malay and Indonesian) student group, I observed that students silently accepted unit content. When students were questioned for feedback, responses would typically be in the affirmative with a physical gesture such as a nod of the head or a verbal “Yes Sir”. When students were questioned about formulae or asked to give a final answer, students were unwilling to cooperate even when various forms of teacher-student communication or classroom dynamics were altered.

From a teacher's perspective, gauging student cognitive levels was difficult when the communication between teacher and student appeared to be one way. As an experiment, a particular statistical concept was delivered with worked examples, and followed with a set of reinforcing group work. Answers to the set of questions used in the group work activities were also available within the end section of the prescribed text. The results for each of the formulae, the working out and the answers were deliberately erroneous to provoke a response from students. It was also hoped that this activity could be used to gauge the cognitive engagement level of students. The students however, continued to accept the errors as being correct.

Follow up activities required the students to check formulae and answers within the text. Students were directly confronted with a situation in which the teacher response and text were different. Still students would not respond or communicate the required correction. Many students continued to re-write the incorrect formulae and answers provided. The class was drawn to a quick conclusion and a short break was provided to reflect on the classroom interactions. As a teacher I was puzzled as to why the students had not pointed out my mistakes. In previous teaching experiences outside of this learning environment, and even as a student, whenever a teacher made a mistake it gave the class an opportunity to quickly correct a teacher and in many cases caused disruption and laughter.

After the short break the class recommenced and an intimate discussion was initiated by me with the students regarding expectations of the learning environment. To commence the session I expressed to the students that my experience as a teacher and student within the Australian further and higher education learning environment required student feedback and continued demonstration of achievement. After some time and persistence a few students (who were more extraverted and confident) explained that it was inappropriate to question teacher behaviour and that they were unfamiliar and not confident with open discussion within the classroom. They were also unsure of what consequences may result from questioning a teacher.

The remainder of the class was spent establishing a 'Classroom Contract' where students and I established a set of rules, expectations and guidelines of the classroom learning environment. Both student and teacher opinions were aligned to set

guidelines such as setting:

- Student expectations of the teacher,
- Teacher expectations of the student,
- Student and teacher behaviour within the classroom,
- Marks allocations during group work and group assessments and devising academic penalties for students not contributing to assessment work,
- A rotation system of student feedback was established in group work,
- Penalties for students attending class late or disrupting a class, and
- Teacher feedback frequency and quality.

What became apparent during this process to me as a teacher was that I needed to explain why certain student-led dynamics were needed to be present within the classroom. When I introduced any type of student led activity I would have to explain why, including:

- *“because this is what you as a student will encounter in the University environment”*,
- *“because this gives me the teacher, the opportunity to assess your ability to undertake independent inquiry and bring new information to the classroom environment”*
- *“because this gives me the teacher the opportunity to assess your understanding of concepts – cognitive ability, and your ability to solve problems and learn from your own learning – metacognition”*

Students within the class still asked *“why can’t you just tell us what we need to know”*, and as a teacher I would reflect upon the proverb which titles chapter three of this thesis: *“Tell me and I forget, Show me and I remember, Involve me and I understand”*.

I would also have to define my expectations as a teacher and state to student *“I expect to see you”*:

- *“participate and contribute to group work”*
- *“use literature to describe things in your own words”*
- *“debate/argue what you have learnt”*

- *“integrate and apply new information”*

When these additional approaches to the learning environment were implemented, students appeared to be more effective within group exercises, were more likely to challenge classroom discussions and contribute in a way that was reflective of a student-led learning environment.

A study by Tielman, den Brok, Bolhuis and Vallejo (2011) within the Dutch senior secondary vocational education environment suggests that international students within multicultural classrooms were mostly focused on their individual performance which resulted in poor collaboration among classmates. Teachers on the other hand seemed unaware of their own role in affecting students' behaviour and the influence of the cultural backgrounds of students on collaborative learning processes.

In respect to Asian student attitude to authority, Lu et al. (2010) suggest that modesty and compliance are traits of students from Confucian-heritage cultures. This research suggests that Asian students need to maintain modesty and compliance which extends from childhood education in which students do not need to have their own ideas, they just need to know that the teachers asks. This influence results in students being more introverted (Huang & Trauth, as cited in Lu et al., 2010).

When describing a teacher in China, Song, Kwan, Bian, Tai and Wu (2005) states that:

“The teacher is an honorable person who is treated with solemnity and awe by the students. They obey from fear. The teacher has attained the Way. This traditional and cultural influence on the relationship between teachers and students in China could present a major obstacle to overcome.” (p. 383).

Unlike western country students, it is also argued that students from an Asian culture do not wish to express critical thinking (Chui, as cited in Lu et al., 2010). Other studies (Pre-Pau, 1994; Song et al., 2005) commented that there is an emphasis on student respect for teachers and teacher dignity in China. This study also suggests

that it has been tradition that teachers in China must be stern in front of students and the students are expected to obey the teacher absolutely.

Duit & Confrey (1996) suggest that successful constructivist approaches are based on revising classroom norms to value alternative perspectives, thus reaching negotiated consensus about how classes are to be conducted and the possible meanings and agreements about the content being taught. This is consistent with findings in the literature, where student responsibility and freedom have been linked with student enjoyment in the classroom (Créton, Hermans & Wubbels 1990; Wubbels & Brekelmans, 2005).

Some studies are concerned with the difference in teaching and learning style (Ballard, 1987; Pe-Pua, 1994; Samuelowicz, 1987). Tucker & Ang (2006) describe that opposing teaching models are used in Australia and Asia in which Australasian andragogy is student-centred promoting extroverted learning styles, whilst in Asia the andragogy is teacher centred promoting introspective learning. Nguyen (2008) found that cultural background influences student perception and interpretation of the learning environment. Ngyugen (2008) further states that a challenge for educational leaders is to balance the changing demands put on learners and teachers as a consequence of globalisation, whilst remaining sensitive to the tasks of addressing the need to value the cultural context of learners and teachers.

In incorporating the information from these recent literature findings and from my own experience it appeared that a student's cultural background and language may greatly influence student perceptions and actions in the classroom, and that international student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment may perhaps then be grouped based upon cultural and linguistic similarities.

### ***A unique environment to study***

International pathway education is a relatively new and comparatively unexplored education sector in Australia. International pathways education is also a component of the growing export industry of international education in Australia.

In working within the Australian based international pathway learning environment, I

recognised that the industry provided many research opportunities. Reflecting on previous and current life and work experiences I began to list a range of research opportunities which provided guidance to this study. These research opportunities predominantly focused upon the teacher/student interactions within the Australian based international pathway learning environment:

- What research has been conducted into teacher/student interactions within international pathway environments?
- Are these students undertaking a suitable education experience as other students may take in other educational environments?
- Does student attitude affect classroom dynamics, or vice versa?
- What effect does language and culture have on a multicultural classroom environment?
- What effect does age or sex have within the classroom?
- Does the type of course or course duration change students perception of the classroom environment?

Two quotes published by the then Department of Education, Science and Technology (DEST) assist in setting the scene for this thesis:

‘To date, however, very little has been known about the nature of these pathways and the number of international students undertaking them’ (AEI, 2005b, p .1).

International pathway education is ‘a unique feature of the Australian education system, with many international students following study pathways rather than limiting their study to a particular sector or level of the education system’ (AEI, 2005b, p. 1).

Even though non-Australian based international pathway education institutions and their students were not the focus of this study, it should be emphasised that given the number of similar international institutions and associated pathway institutions around the world, there has been very little research that has come from these

pathway learning environments globally.

When considering the complexity of international education, terminology such as ‘globalisation’ (Currie, 2005), ‘internationalisation’ (Knight, 2001) and ‘privatisation’ (Ntshoe, 2004) appear to be used interchangeably. Other literature suggests that other terms such as ‘commercialisation’ (Meek & Wood, 1997) and ‘marketisation’ (Ntshoe, 2004) better describe privatisation activities, while unique language such as ‘glonacal’ (Marginson & Rhoades, 2002) which is derived from the words ‘**g**lobal’, ‘**n**ational’ and ‘**l**ocal’ are used to contextualise influences at their respective hierarchical levels.

Using some of these terms the next section of this thesis will explore, define and contextualise these terms in relation to the research group and provide a focus towards its unique position within the international pathway education sector.

***Globalisation: an international comparison***

Marginson and Considine (2000) defines ‘globalisation’ as the “growing impact of world systems of finance and economic life, transport, communications and media, language and symbols” (p.47), in which globalisation is about the movement of people, money markets, as well as the networks and patterns of trade on and off shore. Marginson and van der Wende (2007) describe globalisation as a worldwide convergence process involving partial integration in which the economy, language, culture and economy are part globalised. This chapter will now briefly investigate the global movement of people and money in relation to this study.

The international education sector, and as a subset of this the international pathway education sector of which Australian based international pathway environments exist, have developed in a similar way globally. Vincent-Lancrin, and Kärkkäinen, (2009) noted that one of the key aspects of globalisation is the observed convergence of governance models in most Organisation for Economic Co-operation and Development (OECD) countries which is particularly evident when higher education funding mechanisms and quality assurance process are investigated. Merrick (2013) acknowledges that policy supporting international education in Australia and the UK has evolved along similar trajectories.

The international education sector is a competitive industry with UK, USA and Australian based international pathway education providers, with local and international competition for overseas global markets focussed around attracting students to their country of origin.

***Global movement of people***

Verbik and Lasanowski (2007) identified that 90% of international students were enrolled in education providers belonging to the Organisation for Economic Co-operation and Development (OECD) with over 70% of these students within the main destinations of the US, the UK, Germany, France and Australia.

In 2008 the Organisation for Economic Co-operation and Development (OECD, 2008) reported that based upon 2006 data approximately 45% of international students travelled to the US, UK and Australia. Australia was recorded as being placed as the fifth-largest destination for international tertiary students, with international students making up more than 20 per cent of enrolments.

A follow up report in 2010 (Karkkainen, 2010) indicated that in 2008, 3.3 million tertiary students were enrolled outside their Country of Citizenship, with approximately 2.7 million, or 79.1% studying within an OECD country.

By 2012 the OECD (OECD, 2012) reported that in 2010 over 4.1 million tertiary-level students enrolled in countries outside their citizenship. Australia remained in the top five OECD countries in relation to market share of international education as represented in Figure 1.1 on the next page, and is only second to Luxembourg in percentage of international students at the tertiary level in each country (Figure 1.2 – next page).

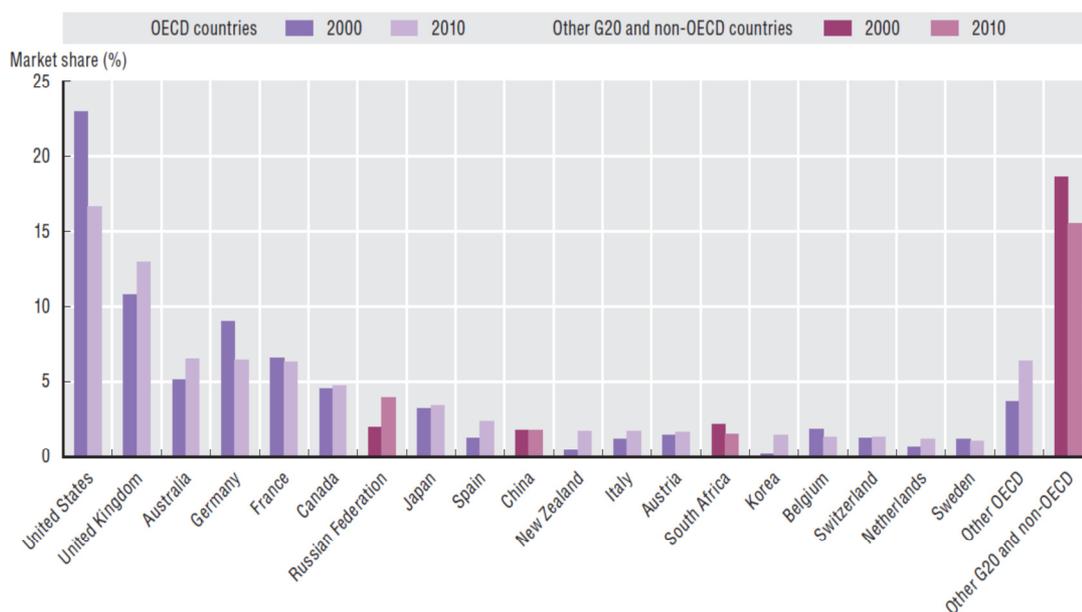


Figure 1.1: Trends in international education market shares (2000, 2010)

Reprinted from Organisation for Economic Co-operation and Development, (2012) *Education at a Glance 2012: OECD Indicators*. OECD

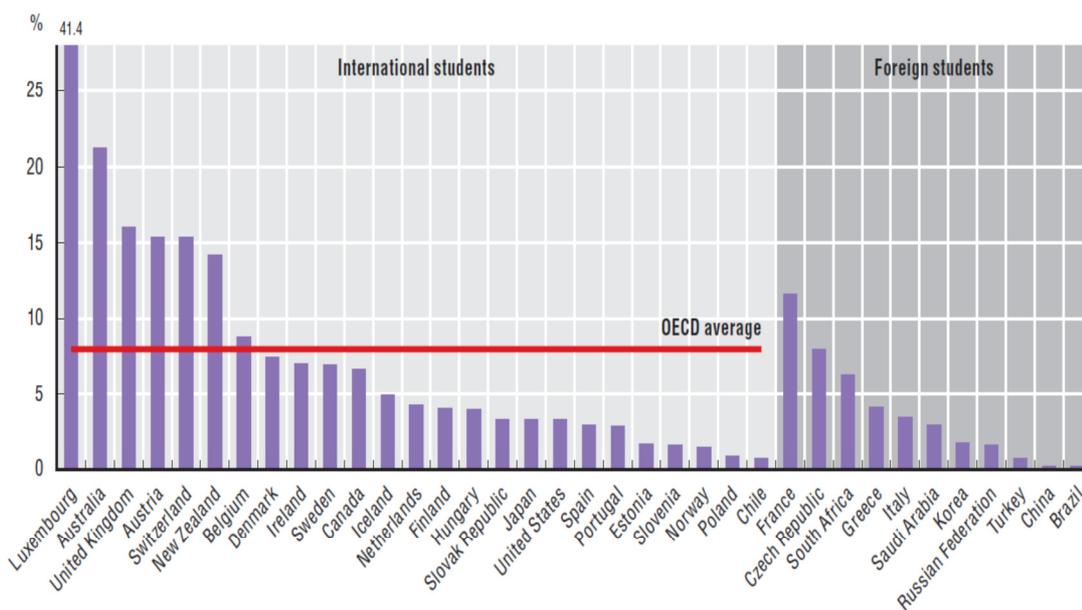


Figure 1.2: Percentage of international students at the tertiary level in each country

Reprinted from Organisation for Economic Co-operation and Development, (2012) *Education at a Glance 2012: OECD Indicators*. OECD

Lewis (2009) suggests some of the major changes to quality assurance in all countries include the move to outputs, the increasing use of overseas reviewers, the greater use of generally explicit expectation statements to a greater or lesser extent, while the creation of “Higher Education Spaces”, the breaking down of national

boundaries at a political level, and growth in importance of the Regional Networks at an operational level would seem to be leading to greater convergence of practice across the world.

It was therefore decided that a brief literature review be conducted into international student perceptions of learning environments in the UK and USA to provide further information for this study.

### ***International perspectives in the UK***

For the UK, the research investigation began with online repositories such as Ofqual ([www.ofqual.gov.uk/](http://www.ofqual.gov.uk/)) which was observed as providing a register of recognised qualifications in the UK. Information gathered from the Accreditation Service for International Colleges (ASIC) (<http://www.asic.org.uk/>), British Accreditation Council (BAC) (<http://www.the-bac.org/>), Independent Schools Inspectorate (ISC) (<http://www.isi.net/home/>) and Quality Assurance Agency (QAA) (<http://www.qaa.ac.uk/>) provided evidence that international colleges are required to undergo inspections to become accredited institutions and placed on a Home Office ([www.ukba.co.uk](http://www.ukba.co.uk)) register of approved learning providers to recruit international students. Having lived and worked in a British-based international pathway education institution these regulatory, accreditation and quality assurance bodies provided similar structures and frameworks as those within Australia, and are discussed in chapter two.

Within the UK, the Home Office ([www.ukba.co.uk](http://www.ukba.co.uk)) is the immigration authority within the UK providing limited data on international students. The National Student Survey (NSS - <http://www.thestudentsurvey.com/>) According to Fielding, Dunleavy and Langan (2010) has been the prominent tool used to collect data on international student satisfaction within the UK tertiary sector since 2005, whilst the Quality Assurance Agency (QAA) details how the UK relies to a large extent on the NSS and International Student Barometer (ISB) to provide quality information relating to monitoring international student satisfaction within the higher education sector.

Having lived and worked within an international further and higher education provider in the UK, I, as a participant observer and researcher, observed that surveys

such as the International Student Barometer (ISB - <http://www.i-graduate.org/>) were used in the UK. It was also through this experience that I became familiar with the United Kingdom Council for International Student Affairs (UKCISA - <http://www.ukcisa.org.uk>) which appeared to provide a majority of statistics in regards to international student satisfaction.

The importance of international education within the United Kingdom was highlighted in a joint project (HEA, 2011) between the Higher Education Academy (HEA), United Kingdom Council for International Student Affairs (UKCISA) and Teaching International Students (TIS). The project was undertaken to develop a website to assist teachers to maintain and improve the quality of teaching and learning for international students. This website was proposed to provide guidance and information on how to meet the diverse learning needs of international students.

A project at the University of the Arts London (Sovic, 2008) investigated the experiences of first-year undergraduate international students. The project involved collecting quantitative and qualitative data from 141 international students and 21 home students. This project identified language, stress, expectations and cultural change as some of the aspects which influence the international student experience. A noteworthy comment within the report that informs this study relates to students perceptions of their tutors. Students in this report identified that those tutors who acknowledge students have a problem with language are patient, supportive and appreciated by students.

Clarke and Jopling (2009) reflect upon studies primarily focused upon teacher's perceptions of high quality university teaching, and report that research conducted by Reid and Johnston in 1999 (as cited in Clarke & Jopling, 2009) on higher education student perceptions of effective teaching was still applicable some 10 years later.

Caruana and Hanstock (2003) described the lack of guidance on internationalisation of higher education by the UK government meant that institutions had to be especially clear about their international missions. Caruana and Hanstock (2003) also suggested that the internationalisation strategies within the UK generally fail to resolve issues regarding dominant cultural literacy paradigms and teacher

development in relation to cross-cultural teaching, and in the context of a quality learning experience research needed to address home and international student's perceptions and experience of the international dimension in their learning.

The Quality Assurance Agency (QAA) in the UK undertook a draft consultation on *International students studying in the UK - Guidance for UK higher education institutions* (QAA, 2012), to “increase research, information and knowledge of the international student experience within the UK”. This paper suggests that given relatively high international student satisfaction rates, there are still areas of improvement which need to be addressed as the international student population grows. These areas of improvement include enriching the social and academic experiences of all staff and students whilst bringing financial benefits.

“In particular, the great diversity of the international student population requires HE (Higher Education) providers to manage an increasingly varied range of expectations and needs” (QAA, 2012, p.2).

One such product of the QAA review came from Kandiko and Mawer (2013) who undertook a study involving 150 students from 16 UK institutions. The review's aim was to represent the diversity of the student population in UK higher education which includes domestic, international and European Union students. This study reported that the exposure to a new educational system, culture and language were significant aspects of the transitional experience for some international students.

Woodfield, Fielden, and Middlehurst (2011) describe how research and teaching linkages have been eroded in the traditional education system in which the linkage between teaching and research remain in culture and practice. It is argued that teaching and research are reinforced by academic status, funding and reputational pressures, quality assurance arrangements and external markets. This literature review reinforces that research within international pathway learning environments is scarce, and continues to be a key credibility and quality assurance marker for the sector.

Some research existing within the UK examines the nature of international students' experiences with a focus on focus on the 'lived experience' (van Manen, 1990) or 'lifeworld' (Husserl, 1970) of the individual, experiences using ethnography (Deumert, Marginson, Nyland, Ramia & Sawir, 2005; Grimshaw, 2007; Montgomery, 2010) or contact theory (Schweisfurth & Gu, 2009) which proposes that by being in contact with people of differing cultures and backgrounds that a sense of mutual understanding and tolerance can be developed.

The author of this study, having worked in both the Australian and UK international pathway learning environments observed that international education in these countries appeared to be regulated and use quality processes in a similar way. The researcher also observed that similar political, educational and social pressures influenced changes in the regulatory and quality framework.

Furthermore, through this lived experience the researcher observed that student perceptions of learning environments did not appear to be a component of quality assurance process. This appeared to be reflected in the minimal amount of research being conducted in learning environments of international students and a scarceness of research involving learning environments within the international pathway sector.

### ***International student perspectives from the USA***

Online research into repositories similar to that in the UK, led to the researcher to the United States (US) Department of Education (<http://www.ed.gov/>) which provides information on both registered institutions and their programs.

The US Citizenship and Immigration Service ([www.uscis.gov](http://www.uscis.gov)) provided limited data in regards to international student data, as per their UK counterpart the UKBA.

However institutions such as the Institute of International Education (IIE) within the US appeared to provide a large array of statistical information on international students from a US perspective. Data sources such as the '*International Student Census*', '*U.S. Study Abroad Survey*', '*International Scholars Survey*' and '*Intensive English Programs*' provided a plethora of information on the international student

population in the U.S. This is of interest to this study as it provides relevant information on student perspectives of multicultural learning environments.

Shinn, Welch and Bagnall (1999) identified that many aspects of international student policy and practices in higher education share similarities between the USA and Australia. Both nations are reported as having similar federal structures, higher education systems, and legal and administrative traditions and responsibilities between federal and state governments. Both nations have also encountered similar changes in relation educational goals.

As in Australia, post-world war II USA passed legislation in the form of The Fullbright Act to enable international students with a viable option to study in the USA (Schweitz, 2006). By 2012 (Institute of International Education [IIE], 2012) the USA recorded 764,495 international students; an increase of 6% in international student numbers in the 2011/2012 period. The National Association for Foreign Student Advisors (NAFSA) reported that international students contributed \$24 billion to the US economy during the 2012/2013 period with nearly 313,000 jobs being supported or generated as a result of international student spending (NAFSA, 2013).

According to Britton, Chamberlain, Davis, Easley, Grunden and Williams (2003), even though the number of international students in the USA is growing it is evident that more studies are needed to explore the unique needs and perceptions of the classroom environment. Britton et al. (2003) state that:

“little exists to indicate how well these students feel their educational needs are being met and what pedagogical techniques they consider most effective (Britton, et al., p. 2).

Lee and Rice (2007) identified that limited literature exists in relation to international student social experience in U.S. institutions. Glass (2012) reflects on research that has involved investigating factors which influence academic performance of international students and language related problems, however has also identified

that few studies have examined whether specific educational experiences are associated with learning and development for international students.

Chapter two of this thesis will further discuss literature in relation to learning environment research conducted within the USA (Levy, den Brok, Wubbels & Brekelmans, 2003; Pickett & Fraser, 2002; Wubbels & Levy, 1993).

### ***International education in developing countries***

Further investigation into international education, revealed that emerging countries such as Jamaica, Bangladesh, Malaysia, and Bulgaria have developed similar policy goals and educational changes to attract internationally mobile students. This is evidenced in a report commissioned by the Commonwealth of Learning and UNESCO (Middlehurst & Woodfield, 2004) on the role of transnational, private, and for-profit provision to meet global demand for tertiary education: mapping, regulation and impact. The report found that:

- The demand for tertiary education appeared to be increasing within all the sample countries,
- The policy goals were similar across the sample countries,
- The sample countries were developing or seeking to revise their regulatory environment, quality assurance processes, and university entry,
- The globalisation in tertiary education had evidently impacted the sample countries,
- However new providers and provision of education varied widely across the sample countries in relation to their extent, range, and form.

The report found that local provision of tertiary education was at a sub degree or degree level through franchising arrangements with local or international universities, whilst most postgraduate level provision was through international education providers in which the impact (positive or negative) of these international education providers was complex (Middlehurst & Woodfield, 2004).

#### 1.2.4 Offshore Australian owned international pathways

As described earlier in this thesis, Australian based international pathway education leading to higher education has moved to institutions abroad. There are many educational providers that have established Australian educational institutions (pathway and/or university) around the world. Davies, Olsen and Bohm (2000) defined the term '*Offshore education*' to describe students studying at institutions outside of the institutions home country.

In 2006, Harman acknowledged that an increase in the proportion of offshore enrolments had recently marked a change between the balance between in-country enrolments and offshore enrolments.

Harman (2006) continues to state that:

“about two-thirds of international students study on university campuses within Australia, while the remainder are enrolled offshore with partner institutions, at institutions that offer Australian courses on a franchised basis, at overseas Australian university campuses, and as independent distance education students” (p. 15).

AEI (2012b) reported that in 2011 there were 80,458 students studying offshore out of a total of 332,577 international students studying in Australian higher education institutions, representing 24% of all higher education international students.

Experience from living in Kenya, Portugal and the United Kingdom, visiting other offshore providers in Sri Lanka, Malaysia and Egypt, and working indirectly with campuses in Wales, Canada and Zambia created researcher awareness and lived experience that is directly relevant to this study. Via an auto ethnographic contribution the researcher sought to inform this study in an authentic and grounded way. The researcher observed, worked within, and visited a number of these educational institutions which provide pathway and/or higher education

qualifications in conjunction with Australian and/or overseas higher education providers in an offshore setting.

In both an onshore and offshore setting the researcher was involved in setting the fee structure and academic entry requirements for a number of courses within Australian based and other international pathway environments. These courses were tailored to provide a financially sound option for students, whilst providing a number of academic solutions for students wishing to enter into higher education qualifications.

The researcher was provided with the opportunity to undertake the lead academic role at an Australian based international pathway education provider in Kenya. Emersion within a foreign learning environment and culture provided a new perspective to the challenges faced by international students. For the students observed in Kenya, cultural and family commitments and responsibilities appeared to take precedence over studies, or required that their studies take a lower priority, even though their education was the overriding factor in their future career success.

Through a lived experience the researcher observed that in Kenya, there was a country of beautiful vistas, scenery wildlife and people, but also a country troubled by poverty and crime. As an expatriate in Kenya, it was crucial to plan daily activities and ensure that the same journey was not travelled within a week, let alone a day. Night time was especially dangerous in which a vehicle would not stop no matter the direction given by signage or the colour of a traffic signal for fear of carjacking. The researcher began to experience the life that some of these students led prior to their time in the Australian based international pathway learning environment. By the time the researcher left Kenya, the nightly sound of nocturnal insects tended to be replaced by the periodic sound of gunfire.

Similar dangers faced the local population on a daily basis. In the 2 and ½ years that the researcher worked in Kenya one staff member was killed in a carjacking, another was seriously injured with a bullet to the spine and at least six others were severely beaten and robbed. Another staff member died of a common illness in Africa which caused great distress to staff. On a regular basis staff and students would be frisked of money by thieves and officials.

In a country of poor infrastructure, no public transport and in a dangerous environment it was understood that time was precious, but time was also a matter of perspective. When staff or students were late to college, as administrator, I would query their ability to maintain punctuality as a work colleague or a student of the college. A typical response would be *'hakuna matata (don't worry), but I am here now'*. After time I realised that rather than this being a flippant remark, it was a strategy that had embedded itself into culture and expressed that their lateness was caused by one or more factors which they did not want to discuss, as everyone within that environment also had to face these challenges on a daily basis.

One of the most amazing features of the Kenyan psyche that the researcher observed, was even in the face of adversity everything was said with a smile and cheer in which we forget about the past and what is bad, and move onto to the future and what is good.

Of great concern was my time in Kenya during the internal political conflict within Kenya. This was a period of great tension and anxiety between staff and students of opposing tribes and/or beliefs. People who one day were friends became foes the next. Life in Kenya was difficult. Famine, droughts and civil unrest brought people by their thousands to the city from within Kenya and from afar such as Ethiopia and Somalia. This in turn escalated criminal activity in which violent crimes became common place.

All this combined with rationed water supplies, an ongoing erratic electricity supply, and volcanic eruptions in Tanzania just added to the dynamic environment. Collectively this experience in Kenya transformed the researcher's perspective on many aspects of life, provided an insight into the origins of preconceived notions and experiences that students may bring into the Australian based international pathway learning environment and how these may influence their perceptions of the teacher-student behavioural interactions.

This lived experience also continued in the United Kingdom (UK) where the researcher worked within the further and higher education environment as a Vice Principal at a private international college. The UK environment further emphasised

the pressures and challenges placed on international students from other unstable regions of the world such as Pakistan and Nigeria.

The complexities of life that international students faced were better understood by the researcher through this lived experience, and the auto-ethnographic account of these experiences adds value to this study.

### **1.3 Background to the study**

This chapter has reflected upon the authors past 20 years of post-secondary education that is relevant to this study and, the past 15 years of professional and personal experiences from around the world that authenticates this study based upon lived experience. These experiences have led to the development of this research in which the focus has been placed on student perceptions of teacher-student interactions within Australian based international pathway environments.

Chapter two will provide further discussion on Australian international education policy from the past 60 years, as it is Australian international education policy that has allowed the Australian based international pathway education environment to come into existence and flourish (Böhm et al., 2002).

This study will utilise the theoretical framework that underpins current learning environment research. The literature available on this area will be introduced in the next part of this chapter which extends back in history, with seminal work coming from the late 1930's, and again in the late 1950's with work by Leary (1957) and Moos (1979). Learning environment research will briefly be discussed in the next section of this chapter and further investigated in chapter two.

#### **1.3.1 The Learning Environment**

When Lewin (1936) developed the notion that the interaction of both the environment and personal characteristics of the individual are effective factors in human behaviour, he described and created the most basic principles of the learning environment.

The Learning Environment has been shown to be associated with student outcomes such as attitude, achievement, gender, and cultural background (Rickards, 1998). Fraser (2001), states that a learning environment is one which is highly influential on student perceptions, conceptualisations and one which strongly influences student achievement.

Learning Environment instruments are typically related to the theoretical frameworks on human environments. These theoretical frameworks were independently proposed by Moos (1968) and Walberg & Anderson (1968). Standard learning environment instruments like these use the Likert (1932) five point numeric scale.

Moos research on human environments over the 1960's, 70's and 80's (Moos, 1968, Moos, 1974; Moos 1979; Moos & Houts, 1968; Moos, Insel & Humphrey, 1974; Moos & Trickett, 1974; Moos & Trickett, 1987) generated three categories defining the characteristics of learning environments.

Moos's three categories were developed from a range of learning environments and defined the three categories or 'dimensions' as the 'relationship dimension' – the ability to assess the extent of people involvement, their ability to support and assist each other, and is defined as the intensity and nature of personal relationships within the environment, 'personal development' – individual growth and enhancement, and 'system maintenance and system change' – which is assessed by the control, order, expectations and response to change (Moos, Insel & Humphrey, 1974). The *Classroom Environment Scale* (CES) was developed and validated as a product of this research by Moos and Trickett (1974, 1987).

According to Fraser (1998a) three dimensions became apparent within the learning environment. The Relationship dimensions included measurements of the intensity and nature of personal relationships within the environment and how they support and helped each other, while the Personal Development dimension included measurements which assess the basic directions of personal growth and self-enhancement. The Maintenance and System Change Dimensions (Fraser, 1998a) include measures of the extent to which order, control and explanations and responsiveness to change was present within an environment. These three

dimensions became the basis of the development and validation of learning environment instruments.

At the same time Walberg (Anderson & Walberg, 1968; Walberg, 1968; Walberg & Anderson, 1968) began research into classroom environment assessment with work on the Harvard Project Physics (HPP). Walberg's work involving physicists and teachers towards the development of the *Learning Environment Inventory* (LEI) which was subsequently implemented (Anderson & Walberg 1968; Fraser, Anderson & Walberg, 1982; Walberg & Anderson, 1968) to investigate learning environments of classrooms from the perspective of the student.

A majority of the research during the 1950's – 70's had been based upon the student, however subsequent research in the 1980's started to focus more on teachers (Wubbels & Levy, 1993).

Teacher-student interpersonal behaviour generated interest, with research in the Netherlands (Wubbels & Levy, 1991; 1993) which brought into existence the circumplex model to assess teacher-student interpersonal behaviour, which forms a key theoretical dimension to this study.

In 1957, Leary devised a two dimensional model for representing and measuring relationship dimensions. Wubbels, Créton, Levy & Hooymayers (1993) generated an eight sector model which mapped over the two dimensions of 'Proximity' and 'Influence' devised by Leary.

Kounin (1970) identified that a students' motivation and attitude is influence by the teacher's ability to clearly explain concepts and make subject matter interesting. During the 1990's (Brekelmans, Wubbels & Créton, 1990; Fisher, Henderson & Fraser, 1995; Rawnsley, 1997; Wubbels Brekelmans & Hooymayers, 1992) research indicated that an emphasis on learning environment characteristics associated with achievement and attitude are key to improving measured student achievement and attitude. This study seeks to include the variable of attitude within this study.

Jegede and Okebukola (1992) commented that socio-cultural aspects of classroom

environments are theorised to have potential influence on students' learning. There has been extensive research (Hofstede, 1980; Hui & Villareal, 1989; Jegede & Okebukola, 1988; Lonner, 1980; Riah, Fraser & Rickards, 1997; Rickards 1998; Waldrip & Taylor, 1995) to indicate that cultural background is a factor within multicultural learning environments.

Selvadurai's (1992) asserted that language was the first barrier encountered by an international student. There has been additional research indicating that language is an influencing factor in the multicultural learning environment (Ballard, 1987; Ballard & Clanchy, 1997; Levy, Wubbels, Brekelmans & Morganfield, 1997; Rickards, 1998; Rickards & Fisher, 2000a; Ryan & Hellmundt, 2003; Young, 1998). Language and cultural background will be included as variables to be measured within this study.

Research in the 1980s and 1990s (Fisher, Fraser & Rickards, 1996; Fraser, Giddings & McRobbie, 1992, 1995; Lawrenz, 1987; Rickards, 1998) have reported associations between student sex and perception of the learning environment. Friedler and Tamir (1990), Schibeci and Riley (1986) Wareing (1990), Rickards (1998) reported sex differences in student attitudes. This study seeks to determine if this relationship exists with a unique sample of Australian based international pathway students.

Research into teacher-student interactions has continued into the new millennia and involved research which has investigated the influences of technology (Albon & Trinidad, 2002; Harwell, Gunter, Montgomery, Shelton & West, 2001; Margianti, 2001; Rickards, 2003; Trinidad, Aldridge & Fraser, 2005) multicultural and cross-cultural learning environments (Koul & Fisher 2008) and attitude (Fisher, den Brok & Rickards, 2006; neSmith, 2003; Reid, 2007), whilst other studies have investigated a multitude of variables such as gender, ethnicity and age within the same study (den Brok, Levy, Rodriguez & Wubbels, 2002; den Brok, Levy, Wubbels & Rodriguez, 2003).

den Brok, Hajer, and van Eerde (2010) suggest that teachers in culturally diverse classrooms must be self-conscious of their own cultural frame of reference as well as

having an awareness of different cultural and language backgrounds of their students and an appreciation that their students have different needs.

Chapter two of this study will elaborate on each of these studies and other relevant and more recent studies from 2000 to present which directly relate to and inform this thesis.

Building on this research, the present study intends to select one of the learning environment instruments, namely the *Questionnaire on Teacher Interaction* (QTI), utilising the theoretical framework described in the above papers and apply a systems approach to communication in a unique and novel way.

This study is also novel in its use of its key instrument, which has been well validated in other countries and many other studies, and been modelled on the original Dutch version of the QTI. This study will modify the 48 item short form of the Australian QTI instrument (Wubbels, 1993) and seek to update the language used in the questionnaire so that students in an Australian based international pathway learning environments readily understand each of the instruments items.

It is hoped that one of the practical outcomes of this study will be an international version of an already well accepted instrument which has been validated using data from a new large sample to support its use in the Australian based international pathways context.

#### **1.4 Significance of this Study**

Australian degrees have been internationally recognised with 14 of the top 200 universities worldwide being Australian ([www.qsnetwork.com](http://www.qsnetwork.com), 2005), and eight Australian Universities being ranked within the top 200 in 2013 ([www.qsnetwork.com](http://www.qsnetwork.com), 2013).

International student education generated 3.7 billion dollars in 2000 (Myton, 2002), over 5 billion dollars to the Australian economy in 2002 (Bohm et al., 2002), over 13 billion dollars in the 2007-2008 period (Australian Bureau of Statistics [ABS]ABS,

2009; Rowbotham, 2008), and 18 billion (Phillimore & Koshy, 2010) dollars in 2009.

2011 (AEI, 2011a) data suggests that the export income of international education in Australia declined by 12% in the 2010 – 2011 period to \$16.3 billion compared to the 2009-10 financial year. This trend continued in 2011 and into 2012 (AEI, 2013a) with a 4.4% decrease in international education activity in 2012 which contributed \$15.3 billion in export industry of Australian. AEI (2014) data indicates a turnaround with an increase of 2.3% in international student enrolments in 2013 on 2012 data.

It is therefore imperative that international student education be a successful, productive and enjoyable experience for all concerned, but in particular for the students who will encourage others to follow the same pathways to higher education. The succession of international students will sustain the value of the pathway programs as a means of providing opportunity and capacity building in environments where people may not have access to this education opportunity without a pathways opportunity.

Andrade (2006) stated that international students make a valuable economic and educational contribution to higher education institutions in English speaking countries. Andrade (2006) advises that universities must become knowledgeable about the adjustment issues that international students face and implement support services so that these economic benefits may continue.

In order to investigate the success of international students in pathway education it is important to establish the extent to which the classroom environment and the attitude of the student to these environments influence the Australian based international student experience.

It is also important to establish whether student cultural background, age and sex influence the international student experience in Australian based international pathway education environments. With better understanding of these variables the learning environment can be better tailored to suit this diverse student population and improve outcomes for all. Other academic variables such as course and unit of

study, period of study and location of study may also influence the student experience.

The study is significant for five main reasons:

- This research is significant as it will endeavour to modify 48 item short form of the Australian form of the *Questionnaire on Teacher Interaction* (QTI) using the language of English in an Australian based international pathway context.
- This will be the first time that the QTI will be completed by students within an Australian based international pathway education environment, which will provide a new data set for the validation of the QTI.
- This research is important as it is likely to contribute to the understanding of student perceptions and attitudes towards the Australian based international pathway learning environment.
- It is likely to provide associations of student perceptions of the Australian based international learning environment based upon cultural backgrounds, age, sex, course of study attitude.
- The study is likely to provide literature towards an improved student experience within the Australian based international pathway learning environment.

### **1.5 Focus of this study**

The main purpose of this study is to investigate student perceptions of Australian based international pathways to higher education and examine ways to improve the student experience.

This study will therefore seek to develop and validate a modified student questionnaire to assess the student perceptions of the Australian based pathway learning environment.

The study will use the newly developed tool to investigate associations between student perceptions of the teacher student interpersonal behaviour within Australian based pathway learning environment based on student sex, age and cultural

background in international pathway environment. The study will also seek to investigate associations in student perceptions of the Australian based pathway learning environment based on Program of Study and Attitude.

The researcher's created the *International Questionnaire on Teacher Interaction* (IQTI) which combined a set of introductory questions on Cultural Background, Age and Sex, and Program of Study; a modified version of the Australian 48 item short form of the Australian version of the *Questionnaire on Teacher Interaction* (QTI), and an unchanged 'attitude to class' scale derived from the *Test of Student Related Attitudes* (TOSRA).

To provide a focus to this study three objectives have been developed to deliver a structured method to the research.

## **1.6 Objectives of this study**

The modified QTI tool and 'attitude to class' scale based on the TOSRA, have not previously been used to assess the student perceptions of teacher-student interaction within Australian based pathway learning environments.

The objectives of the proposed study are:

1. To develop and validate a modified learning environment instrument; namely the *International Questionnaire on Teacher Interaction* (IQTI), which will incorporate a range of introductory questions, a modified version of the Australian 48 item form of the Australian version of the *Questionnaire on Teacher Interaction* (QTI) and an unmodified 'attitude to class' scale derived from the *Test of Student Related Attitudes* (TOSRA) to assess student attitude.
2. To investigate associations between student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment and the variables of student Cultural Background, Age, Sex and Program of Study using the IQTI.

3. To investigate associations between student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment and student attitude using the '*attitude to class*' scale based on the *Test of Student Related Attitudes* (TOSRA) to assess student attitude.

### **1.7 Method used within this study**

This study used both quantitative and qualitative data collection methods. This multi-method approach was selected from the recommendations made by Fraser and Tobin (1991) and Tobin and Fraser (1998) and follows trends in science education research. (Arambewela, 2003; Cohen & Manion, 1996; Goh, 2005; Koek, 2005; Koul, 2003; Lawrence, 2004; Madu, 2010; Merriam, 1988; Nair, 1999; NeSmith, 2003; Patton, 1990; Reid, 2007; Rickards, 1998; Tulloch, 2011; Walker, 2003).

A mixed method approach has been identified as helping researchers with good research design, procedures and conduct towards a meaningful study (Ivankova, Creswell & Stick, 2006). The use of a multi-method approach allows the researcher to triangulate data from differing perspectives and provides multiple methods of response from participants to try and counter any difficulties that participants may have had in responding in a particular way (McMillan & Schumacher, 2010).

Student questionnaires are the primary source of data collection for this study with selective qualitative data collection from a subset of the sample population being utilised for triangulation, validation and exploration purposes due in part to the global and unique nature of the sample.

The early development of the *International Questionnaire on Teacher Interaction* (IQTI) used in this study was based on the 48 item short form of the Australian version of the *Questionnaire on Teacher Interaction* (QTI) so as to be as economical as possible for participants to complete. The short form of the Australian version of the QTI was used as a basis to develop a modified version of the questionnaire in the language of English and for use within the Australian based pathway learning

environment. The modified QTI items were developed and validated in a pilot study in Australia conducted by the author and research supervisor. Details of the process and outcomes of the pilot study and final formulation of the IQTI tool are presented in chapter three.

The IQTI was then used in the main study to collect data on student perceptions of the teacher-student interpersonal behaviour in Australian based pathway learning environments from several locations around the world.

For this study a large sample of student responses to the IQTI was collected via convenience sampling. The IQTI was made available via an online interactive form in which the web address was sent to key academic staff to advocate to students across the Australian based pathway institutions in Australia and overseas. In addition, pen and paper versions were also sent to the same key academic staff whose infrastructure and/or facilities were identified as being inadequate. Key academics were requested to advertise the IQTI to students to complete at their leisure and/or deploy the questionnaire at suitable times during their course contact. Convenience sampling was used due to the world wide collection of student responses. A large sample was necessary to create validation data and generate strong statistics.

The study was completed in two stages: Stage One and Two involved the development of the IQTI involving a pilot study, and Stage Three to Six involved the main study.

Stage one and two involved the development of the nine introductory questions which would form the variables of this study. Cultural background questions to elicit information from students included Primary Language spoken at home, Country of Birth, and Country of Citizenship. Student Sex required student to identify as being male or female and Age required a numerical value. 'Program of Study' required students to nominate educational items such as their study Region of Study, Level of Study, Subject and Period of Study. Collectively these formed the nine introductory questions of the IQTI tool.

A set of attitude items were also required for this study. Based upon a review of

existing literature and research involving attitude, the seven item '*attitude to class*' scale (Henderson, Fisher & Fraser, 1998) adapted from the *Test of Science Related Attitudes* (TOSRA) (Fraser, 1978, 1981) was selected as the appropriate attitude component for this study.

A pilot study was used by the researcher to develop a modified set of items from the QTI. These modified scale items were developed using qualitative data collected during student interviews. A final set of modified QTI behavioural scale items were validated using a small representative sample of students within the Australian based international pathway learning environment in an onshore and offshore setting.

Stage Three to Six, the main study, involved the implementation of the IQTI to students within the Australian based international pathway education environment. The final IQTI consisted of three components; nine questions on Cultural Background, Language, Sex, Age and Program of Study; a modified version of the 48 item short form of the Australian version of the QTI, and the seven item '*attitude to class*' scale derived from the TOSRA. Both quantitative and qualitative data was collected during the main study.

The collection of data in each stage was facilitated using Microsoft Excel 2007 (Microsoft Corporation, 2006) and data analysis using SPSS 20 (International Business Machines [IBM], 2011). Qualitative data was collected and analysed manually. Chapter three provides a thorough description of the research methodologies used for this study.

Given the global and diverse sample and the focus of the study on international pathways education, a number of limitations should also be acknowledged.

### **1.8 Limitations of this Study**

The sample comprised of students who were studying at any one of up to 30 international colleges which belonged to a single Australian based corporate body. Due to the widespread nature of these colleges, their locations, and access to technology a convenience sample was taken.

The global nature of the study and large sample size enhanced the study, however also contributed to the limited qualitative data response rate and collection. Further interviews and feedback, though attempted on repeated occasions, were restricted by researcher/student location, lack of research budget, time and resource limitations for students, the institutions and the researchers. The impact of the qualitative feedback was primarily used to triangulate other data sources and limited caution should be applied when extrapolating to other populations.

This study seeks to develop a modified student version of the 48 item short form of the Australian version of the QTI, and therefore teacher data was not relevant to this study. The data from this study has no similar study to compare results with for the specific instrument used. However, as the instrument was closely based on the QTI, which does have a very large dataset to compare results to, the limitation is reduced. This factor assists in alleviating the limitation of a comparatively small data set as reported in this study.

It is also acknowledged that low student representations on some of the groupings/categories within this study exist. This is due to the extremely transient and very diverse nature of the sample for the variables under investigation. Caution is therefore assumed when interpreting statistical analysis involving small grouped sample sizes. Despite this, it should be noted that the ratio observed is reflective (through experience and anecdotal evidence) of the Australian based international pathway learning environment and represents a typical composition when grouped into the variables of this study.

## **1.9 Chapter summary**

Chapter one has provided an overview and discussed the motivations, background, foundation and rationale of this study. This chapter has also outlined the significance of the study, its research objectives, study limitations, and an overview of the research methodologies used to form a cohesive and structured approach to conducting this study.

Chapter two will now present a review of literature relevant to this study with particular emphasis on internationalisation, international education pathways and learning environment research. The chapter will also provide a specific review of literature based upon the selected learning environment tool.

## Chapter Two

### Literature Review

*Siache Kusoma Upate Hekima*

“Never stop studying so you may acquire wisdom”

(Kiswahili: English translation)

#### 2.1 Introduction

This chapter will present literature on the subject of internationalisation of the education sector in Australia. The review will highlight key events in Australian educational reforms as these are relevant to establishing the context of this study. The study also seeks to inform the literature available on the subject of Australian based international pathways to higher education as initial searches have revealed that there is a scarcity of specialised information in this area.

The chapter will also present a chronological review of the developments in learning environment research which provides the theoretical framework for this research. The development and validation of the QTI will be a particular focus given that it is the instrument of selection for this study.

#### 2.2 Internationalisation of the Australian Education Sector

The internationalisation of the education sector in Australia has developed over the past six to seven decades and been directed and influenced by various governmental, educational and immigration reforms. This chapter will, in chronological order, present some of these regulatory reforms and how discuss how they have influenced the evolution of international education in Australia. A particular focus will be on the higher education sector, as this is where there is a majority of information to inform this study is available, and in which the quantitative data collection within this study indicates that a majority of students were recorded at a Diploma or higher level.

Significant changes in Australian legislative history have allowed the Australian

education system to go from “trade” to “internationalisation of education” (Smart & Ang, 1996). The most significant shift occurred during the early 1990’s when the Australian Federal Government made policy changes that enabled a new regulatory structure and provided a number of strategies for institutions targeting overseas students (Back, Davis & Olsen, 1996; Smart & Ang, 1996).

According to Fiocco (2005) this commercial environment was aimed towards the higher education sector, and created opportunities for universities and private providers. It was through these changes that “The development and success of pathway programs was such an opportunity” (Fiocco, 2005; p. 2). These pathway markets occurred as universities recruited foreign students and became aware that ‘pathways’ were needed to prepare students for university studies (Fiocco, 2005). These changes allowed the internationalisation, privatisation and commercialisation of Australian Higher education and a new educational sector to emerge known as ‘pathways’.

As this study seeks to investigate perceptions of students within these Australian based international pathway colleges (in Australia and overseas) it is logical to overview these reforms and investigate the impacts they have had on the pathway environment.

As the higher education sector has become internationalised, a number of issues have also been raised in relation to finances and economy, immigration and migration, public perception, student experience, student oversight and provision quality and integrity. In 2009, Marginson stated:

“One suspects that Australia cannot keep growing its export industry and emptying out teaching and research capacity at the same time. Eventually, quality might be seen to deteriorate, reducing the number (and certainly the quality) of international students and further driving down systemic resources. Otherwise, government may begin refunding the domestic system, in which case international student numbers might begin to fall.” (p. 11)

This literature review will focus upon these issues that have evolved within the international education sector as they apply to the further, higher and pathways education. Some issues raised in this literature review regarding the internationalisation of education in Australia have also become escalated in mainstream media, and combined these discourses signal the timely nature of this thesis.

### **2.2.1 What is internationalisation?**

In researching the word ‘internationalisation’ and its impact on the education sector in Australia, it is acknowledged that other themes such as ‘globalisation’ and ‘privatisation’ are also discussed and at times considered an integral component which has led to ‘internationalisation’. ‘Globalisation’ as discussed in chapter one, refers to the mobility of students across borders (Findlay, King, Smith, Geddes & Skeldon, 2011; Varghese, 2008), whilst ‘internationalisation’ and ‘privatisation’ will be further discussed within this chapter.

Knight and de Wit (1997) define internationalisation of higher education as a process of introducing an international or intercultural dimension into all aspects of education and research. Bartell (2003) describes internationalisation of Australian higher education as “a complex, all-encompassing and policy driven process, integral to and permeating the life, culture, curriculum and instruction as well as research activities of the university and its members” (Bartell, 2003, p. 46). Leask (1999) found that even though an institution may succeed in embedding internationalisation into the physical structure and underlying values of an institution, it was however unlikely to provide a quality learning experience or have a significant influence on the curriculum in terms of academic practice.

Knight (2006) defines internationalisation not necessarily as a process but more of an integration of intercultural and global dimensions into the purpose, function and delivery of higher education. This definition provided by Knight clearly demonstrates the multifaceted entity that is international education. In 1997, Knight also stated that “it is clear that internationalisation means different things to different people, and as a result there is a great diversity of interpretations attributed to the

concept” (p. 5). This statement by Knight indicates that actions and various methods of developing internationalisation in the education sector are open for interpretation by those observing within and reflecting upon the concept of internationalisation, much like the contact theory described in chapter one by Schweisfurth and Gu (2009).

This variation in interpretation of internationalisation and its impacts on the Australian education sector has led to a range of studies to reflect, evaluate and establish the parameters that define internationalisation within the Australian education sector.

Krause et al. (2005) suggests that the internationalisation of higher education within Australia has had a significant impact of student diversity, and that this diversity “has caused reflection and adjustment in approaches to teaching and learning, the curriculum and modes of delivery” (Krause, et.al., 2005, pg. 4).

Wells (2003) observed that the level of internationalisation within a large internationalised university was not always embedded in curriculum, research or academic strategies. Leask (2009) defines internationalisation of the curriculum as incorporating intercultural and international dimensions into the curriculum, the teaching and learning process, and its support services, highlighting that internationalisation is not only about international students but also involves the syllabus, teachers and support staff.

This study is unique in that it will be the one of few studies to assess student perceptions of Australian based international pathway learning environments. Information gleaned from this study may serve to be useful to other education sectors in which international students are a part of the learning environment.

### **2.2.2 Developing Australia’s international education sector**

This section of the thesis will now investigate the origins of the international education sector in Australia, its subsequent development of international learning environments and the foundation of the Australian based international pathway

learning environment. An examination of changes in government policy relating to education, immigration and privatisation since the 1950's will be presented. The economic benefits of international education and the current academic and social issues that surround Australia's international education sector will also be discussed.

### ***The privatisation of the Australian tertiary education sector***

Currie and Vidovich (2000) describe privatization as an ideological shift where a more market driven environment is enabled and in which market principles such as competition, commercialization, deregulation, and efficiency are imposed. As described later within this chapter, the privatisation of the Australian tertiary education sector resulted in the creation of fully private institutions such as international pathway colleges. Wang and Secombe (2004) describe privatisation of the tertiary education in Australia as being a result of insufficient government funding.

The White Australia Policy (WAP) existed from the early days of post-war immigration despite the changes and growth in international student numbers. The government at the time, worked to introduced programs and services to help shape Australia as a "multicultural" society (Koleth, 2010). In 1952 the then Minister for External Affairs, said "We need to understand and be understood by the countries of South and South East" (Oakman, 2002, p. 89). In the 1950's Australia introduced the Colombo Plan as a post-World War II initiative to increase trade with Australia, which included Australia providing "aide" in the form of education to students from developing countries of the Commonwealth (Smart & Ang, 1996).

From 1951 to 1964 Australia offered 5,500 students under the aide scheme of the Colombo Plan (Oakman, 2002). Students from 15 nations in South and South East Asia constituted 4 to 6 per cent of the main student body, with 16 – 25 per cent of these international students on Colombo Plan scholarships (Oakman, 2002). International student numbers grew throughout the 1950's under the Colombo plan in which little distinction was made between students on the scholarship plan and private students (Oakmen, 2002). Over the same period there was also growth in overall student number at university from 53,338 students in 1960 (Megarrity, 2005) to 100,000 by 1968 (Connell, 1993).

In 1958 the federal Government revised the Migration Act in which it took out all direct mention of race. By 1972 The WAP was officially abolished by the Whitlam Labor Government (Department of Immigration and Border Protection [DIBP], 2012).

Continuing into the 1980's Australian Higher Education continued to provide educational aid to international students. According to Smart and Ang (1993) there were 20,000 foreign 'aid' students and 2,000 full fee paying foreign students in 1986.

In 1983 the Jackson review (O'Malley, 1985), was commissioned by the then Minister for Foreign Affairs to review Australia's overseas aid program. The report from this Jackson review published in 1984, recommended that full-fees be introduced, which was in contrast to a synchronous review led by Professor John Goldring called the Committee of Review on Private Overseas Student Policy which recommended that full-fees would discourage overseas students (O'Malley, 1985).

By 1985 the *Policy on Overseas Students* was launched supporting the recommendations from the Jackson review. This allowed educational institutions to offer places to overseas students. These places were to be offered providing international students met the standard institutional requirements and agreed to study under a full-fee payment system. This movement from "aide" to "trade" (Smart & Ang, 1993, 1996; Back, Davis & Olsen, 1996) resulted in development and growth in international enrolments and allowed Australian Universities to recruit full fee-paying students for profit.

Jones and Anwyl (1987) explains that this was a period of change when the then Whitlam Government decided, in 1974, to abolish tuition fees for first and subsequent degrees and diplomas, and a period in which the following government (1975 – 1983) became preoccupied with fees and loan schemes. Jones and Anwyl (1987) continue to state that by the mid 1980's the term '*privatisation*' was firmly entrenched in higher education vocabulary with the terms use extending to research via non-government funding, full fee tuition places in public institutions and the founding of a private sector. This was also the period in which academic services were marketed to international students.

The development of private education providers within the Australian education environment is of importance to this study as it contextualises the Australian based international pathway learning environment in which this study is situated.

### **2.2.3 The Regulation of Australian international education**

Changes in a range of government policies allowed for the regulation of the international education sector in Australia. These changes also provided an avenue for the extraordinary growth in international enrolments in Australian education institutions from the mid 1980's to present. These policies focused upon international student movement, regulating educational institutions with international students and offering full tuition fee places to overseas students.

As discussed briefly in the previous section of this chapter, significant changes in Australian federal policy in the mid 1980's began with the introduction of the *Policy on Overseas Students* based on the recommendations of the Jackson review (Back, Davis & Olsen, 1996).

It was 1991 when the Australian Federal Government implemented the *Education Services for Overseas Students – ESOS (Registration of Providers and Financial Regulation) Act 1991*. According to the Parliamentary Library (Education Services for Overseas Students Bill, 2000) the Act was due to the collapse of private providers who had offered international students (primarily from China) a course, accepted a deposit, and closed before the course was completed.

Smart and Ang (1996) described this shift in policy as a genuine '*internationalisation*' of education by the Australian federal government. Back, Back, Davis & Olsen (1996) highlighted that these policy strategies included a change in term from "full-fee paying overseas student" to "international student" and set out regulations to restrict activities undertaken by International Offices of education providers. The Act also provided tighter regulation around the use of marketing and commercial terms during the recruitment process, and mandated that a specific reference in mission statements and strategic plans incorporate the internationalisation process. These regulations also extended to Australian education

providers becoming familiar with overseas qualifications and awards and ensuring that these overseas awards were granted equivalence with Australian higher education awards, and finally recognising the non-commercial benefits of internationalisation.

The ESOS Act has enabled the government to place additional regulations on education institutions providing places for overseas students. For example, the regulations that enable the ESOS Act require educational institutions offering places to overseas students to be registered on a Commonwealth Register of Institutions and Courses for Overseas Students (<http://cricos.deewr.gov.au/>). The CRICOS code identifies an international student's acceptance to a particular CRICOS registered education provider which monitors international student movement and provides statistical data on international student enrolment and activities.

The ESOS Act is briefly discussed in this literature review as it provides a Federal Government regulatory framework for educational institutions that offer educational services to international students. This framework also allows additional Act enablement and/or regulatory requirements to be structured, and provides financial, non-government and regulatory requirements and information.

Through the researcher's working experience, the ESOS Act provides a framework to educational institutions in Australia to recruit international students (including guidelines on marketing, advertising, and interactions), provides guidelines on suitable information for students (such as pre-departure, departure and arrival). It also requires institutions to have all programs and courses registered with the relevant bodies, provides a framework for the duty of care of students (welfare, pastoral, academic) and also for the provision of services once the student leaves the education provider (alumni, future study and career advice).

In 1996, Kember and McKay noted that there "is a marked lack of literature on the mechanisms by which these faculty development units can enhance the quality of teaching in universities" (Kember & McKay, 1996, p. 530).

During the author's time in Australia and working in Australian based pathway

institutions abroad, an awareness of, and experience with these government frameworks was developed. An appreciation of the highly regulated nature of the international education sector and the protection this regulatory environment provided to the international student was observed.

Through lived experience, the researcher gained awareness that many government requirements gave generic and flexible guidelines on educational support, cultural support, academic accountability, acclimatisation, language support, educational standards and educational requirements. Of particular interest to the researcher was that there appeared to be little to no associated intervention that related directly to the teaching and learning environment or related towards monitoring or improving the learning environment in which international students were studying.

Two recent reviews have had a significant impact on international education and regulation of education within Australia, namely the Bradley review (DEEWR, 2008) by the then Department of Education, Employment and Workplace Relations (DEEWR) now Department of Industry (DOI) and the Knight review (DIBP, 2011).

The Knight Review (DIBP, 2011) recommended a number of incremental changes to Australian immigration law which are still being enabled today:

- Providing flexibility and quicker response times to assessing student visa applications.
- Allowing international students who wish to seek study at an Australian University as being low risk using a streamlined process for applicants.
- Modifying work rights for international students,
- Providing international research students the right to work full time during their studies
- Allowing immigration officials to have greater discretion in considering visa cancellations and eliminating automatic/mandatory cancellation of student visas, and
- The introduction of a new work visa for Australian University graduates for between 2 and 4 years

The Bradley review (DEEWR, 2008) made a total of 46 reform recommendations to improve Australia's higher education sector. One of these recommendations was to establish an independent national regulator to provide a more effective, streamlined and integrated sector (Bradley Review, 2008).

According to Graham (2011) the government responded by outlining a ten year plan as part of the 2009/2010 budget to implement the recommendations of the Bradley review. According to the *Higher Education Report 2010* (DEEWR, 2010) the federal government allocated \$70 million over four years in the 2010-2011 federal budget, to establish the Tertiary Education Quality Standards Agency (TEQSA) as the new national body for higher education regulation and quality assurance.

TEQSA (<http://www.teqsa.gov.au/>) states that, under the regulatory responsibility of the Tertiary Education Quality and Standards Agency (TEQSA) Act 2011, it has a dual purpose to ensure that higher education providers meet the required minimum standard as prescribed in the Threshold Standards of the Higher Education Standards Framework (HESF), whilst also promoting best practice and quality improvement within the sector.

The review of past and present changes in regulation are of importance to this study as it is these conventions that directly influence and continue to change the framework in which international pathway education providers operate in Australia and abroad.

#### **2.2.4 Quality assurance and quality enhancement**

So far this chapter has briefly mentioned some of the quality assurance mechanisms such as the ESOS Act and TEQSA Act that exist within the further and higher education sectors. Through a lived experience of working within these, and previous regulatory bodies, the researcher has observed that educational research and learning environment development and enhancement do not necessarily fit within the current quality frameworks.

Elton (1992) defined two groups; the "A's" for quality assurance, audit,

accountability and assessment, and the “E’s” for quality enhancement, empowerment, enthusiasm, expertise and excellence.

Kember and McKay (1996) suggest that quality assurance is about seeking to ensure a minimum standard to an acceptable level, whilst quality enhancement is about the overall increase in the quality of teaching. Quality enhancement via educational theory, change management and organisational development need to be comprehensive to bring about improvements in the teaching and learning environment (Kember & McKay, 1996)

According to the Department of Foreign Affairs and Trade – DFAT (<http://www.dfat.gov.au/>) the Australian education and training system is maintained and improved to its already high standard by subjecting the system to review and continuous improvement by government, industry and professional bodies. DFAT states that Australia’s Vocation Education and Training (VET) sector is regulated by the Australian Quality Training Framework (AQTF) which provides a set of nationally recognised standards for the registration and accreditation, auditing and external monitoring of VET providers.

In relation to higher education, Vidovich (as cited in Fiocco, 2005) described the previous Higher education regulator, the Australian Universities Quality Agency (AUQA) framework, as “more about improving and branding Australian higher education offshore” (p. 43).

In 2011, AUQA’s operations were transferred to the Tertiary Education Quality and Standards Agency (TEQSA) via the Tertiary Education Quality and Standards Agency Act 2011. With this change TEQSA implemented a revised set of framework standards. Within these framework standards are a set of teaching and learning standards which are yet to be reviewed by the TEQSA commission and the sector for implementation.

Brawley et al. (2013) describes Australia’s higher education regulatory environment as being “in state of flux” (p. 20) in which education regulation must be more than an administrative process but rather deliver real and measureable outcomes by ensuring

that the quality improvement dimensions are made explicit in the design and supported in practice.

A UNESCO (United Nations Educational, Scientific and Cultural Organisation [UNESCO], 2005) publication provides a set of guidelines for quality provision in cross-border higher education. Within this publication it is suggested that constructive and dynamic contributions of academic staff are indispensable in which higher education institutions are responsible for the social, cultural and linguistic relevance and quality of education. A key guideline within this UNESCO publication was that institutions delivering cross-border higher education should recognise that the quality of faculty and the quality of their working conditions that fosters independent and critical enquiry and enhances the quality of teaching and research.

Leask (2005a) provided a number of findings to the Australian International Education Conference (AIEC) in relation to quality enhancement. Leask (2005a) stated that academic staff needed assistance in both assessing the development of international perspectives in students, but also in the ongoing development of their own international perspectives.

The distinction between academic quality and academic enhancement is relevant to this thesis as it is an anticipated practical outcome of this study to develop and validate a modified version of a well-accepted instrument to support teachers in the international pathways context.

The next section of this chapter will examine current issues in international education which reflect the economic value of international education, social responsibility and current approaches and trends in international education research in Australia.

### **2.2.5 International education responsibility in Australia**

As discussed earlier in this chapter, policy reforms during the 1970's by the Whitlam Government contributed to the eventual abolition of the White Australia Policy, which increased immigration from non-English-speaking countries. Subsequent

Australian governments have continued with similar reform programs with policies introduced to expand immigration from Asian and other non-European countries to Australia.

According to Henry (2013) the Galbally Report of 1978 reviewed post-arrival programs and migrant services and signalled a landmark move towards multiculturalism in Australia. Subsequent policies such as the National Agenda for a Multicultural Australia by the Hawke Government in 1989 and the National Multicultural Advisory Council (NMAC) under the Liberal Government led by John Howard (1996 - 2007) in 1997 continued to promote a multicultural Australia. Other multicultural adjustments such as the Liberal Government led by John Howard (1996 - 2007) and Labour Government led by Kevin Rudd (2007-2010) have provided differing levels of support for multiculturalism. According to Henry (2010) it has become accepted that multiculturalism is a defining feature of Australia's heritage, democracy and culture.

The multicultural education environment and internationalisation of Australian education has also brought new problems; of which English language and rising international student fees have commonly been discussed in academic and popular media.

Brown (2004) suggests that publicity focusing on the growth of unapproved higher education providers provided journalists with the opportunity to use the term 'diploma mill' and 'degree mill' coined from the use of these respective terms in US popular media. According to Brown (2004), offshore providers of education attempted to deliver higher education programs in Australia for no apparent reason in 1998, with nine organisations in the state of Queensland alone being issued with warning letters by the Minister for Education (AAP, as cited in Brown, 2004), and suggested that if left to continue that Australia's reputation as a quality provider of education would be compromised (AAP, as cited in Brown, 2004).

Birrell (2006) examined English language ability at an Australian university and compared domestic and international levels of English competence. Birrell found that approximately one third of international students, who gained permanent

residence in 2005 – 2006 after studying at an Australian university, did not achieve the designated ‘competent’ band of six (6) based upon the International English Language Testing System (IELTS) used for migration purposes.

In Australia, Birrell and Rapson (2005) also found that at a university level almost all education of accountants occurred amongst international students. Birrell and Rapson (2005) implied that as Accounting (at the time) was listed on the Migration Occupation in Demand List (MODL), that international students were only interested in the Accounting courses for the purpose of obtaining Permanent Residency (PR).

Birrell’s work brought mainstream attention to the concerns that some academics had with international students in the higher-education sector. A focus at the time was particularly on the accounting sector, where quality of education was called into question, and so to the intention of international students studying these courses (Watty, 2007).

O’Keefe and Illing (2007) referred to a statement by the then Minister for Education, Julie Bishop, who at the time was responding to these allegations of quality made by Professor Birrell. The Minister stated that Professor Birrell had made an extraordinary attack on Australian universities and iterated that international education remained a strength of Australia, and as the fourth largest export sector in Australia it was in the interest of Australian universities to maintain high standards and remain internationally recognisable (O’Keefe & Illing, 2007).

Marginson (2002) identified that income generated from international students had not been applied to the public funds that they replaced, but rather the money was invested into business operations, marketing, off shore operations, salaries, travel and recruitment. Similar sentiments were expressed by Avithura et al. (2005) who suggested that income generated by international students was being invested in faculty, administrators and staff rather than being used to fund a high level of customer service for the needs of international students.

It was around the same time that the AVCC rejected suggestions that university entry standards had been lowered to increase the number of fee paying overseas students

(Sydney Morning Herald [SMH], 2007) while an education spokesperson for the then opposition was alleged to have said “under-resourcing of universities increased the danger that some of them are now so dependent on student fees that they might drop standards” (O’Keefe & Illing, 2007).

David Rood of The Age Newspaper reported that a group of international students were planning to demonstrate by undertake a hunger strike “as they accused the university of treating them as cash cows” (Rood, 2006). The article continued to suggest that international students were treated as cash cows, with a recent examination resulting in 62% of students failing due to material that wasn’t covered in class, students not given the opportunity to give appeal of grievance, and the institute not having “adequate facilities and libraries” in which “they are just taking our money” (Rood, 2006). Articles such as this brought into popular media the term ‘cash cow’ in respect to international students and international education.

As public and media awareness of the economic and social importance of international education grew, so did the media’s openness to discuss the economic value of education and international student intent. A focus was given to the ability of an international student to become a migrant and the international education sector was being questioning as to the difference between an “opportunity” for an international student, or “exploitation” of an international student. These types of discussions were captured in articles such as ‘*Cash Cows: milking Indian students in Australia*’ by Michael Baas (Baas, 2006).

Ziguras (2007) published an article titled ‘*Time to stop milking the cash cow*’ in which he states that the “first issue we need to think about is pricing” in regards to what appeared to be a standard practice to charge international students more than domestic fee paying students for the same course. The article identified that this practice appeared to be unique to Australia, where in other countries such as the US it is standard for all students to pay the same fee regardless of nationality or residence.

In July 2009, Four Corners, an Australian Broadcasting Corporation (ABC) television show aired a program called ‘*Holy Cash Cows*’ in reference to Indian

students studying in Australia (Carlisle, 2009). The program suggested that their investigations had revealed that unscrupulous businessmen were setting up training schools in Australia to supply qualifications which had no value.

Andy Giannotis (2009) featured a news article called '*International students: Cash Cows for Australian Capitalism*' which referenced privately run colleges for international students and suggests that these colleges are charging excessive fees in an under-resourced and under-regulated environment (Giannotis, 2009).

Ellison (2009) provided an article that suggested that international students were at the 'mercy of con artists, other naïve students and individuals are a quick buck'.

Violence towards international students has also been reported in popular media. An article in the Hindustantimes (2011) iterated the findings of an Australian Institute of Criminology (AIC) report which suggested that Indian students in Australia were more frequently robbed and were more likely to be the victims of assault as compared to other foreign pupils (Donovan, 2011).

Anderson (2011) from The Australian newspaper suggested that there was a need within Australia to rethink its morals, legal and duty of care towards international students as it rebuilds its reputation. This same article criticises Australia's lack of responsibility for safety and wellbeing of its international students and suggests that the sectors enthusiasm for gaining a commercial advantage should be balanced with a duty of care for its international students. Recent media reports (Godfrey, 2013) indicate that police have established social websites to support international students in Australia.

Leask (2005b) identified that there were three competing discourses of internationalisation which emerged from the data analysis at the University of South Australia; academic, economic and socio-cultural discourse. Leask (2005b) discusses that this study, within the contexts of one institute, suggests that the academic and economic discourses of internationalisation are evident as either a primary or secondary discourse, with the economic discourse being of importance in recent years whilst the socio-cultural discourses having been withdrawn to the

background.

In general, multi-cultural learning environments have provided a new and complex frontier for educators. This study seeks to establish if associations exist between international student perceptions of the Australian based international learning environment, with an anticipated outcome of improving the international student experience within the wider international learning environment.

The next section of this chapter will provide an overview of the economic value of international education in Australia.

### **2.3 The economic value of international education in Australia**

This section of the thesis will briefly discuss the past and present economic value of international education on the Australian economy.

Economic data from the 1950's to the mid 1990's is vague on international education in Australia, and is possibly due to a relatively unregulated international education market. It was not until the early 1990's, as discussed in the previous sections, that government policy was enabled which provided a regulatory framework for international education. Once this formal regulatory framework was established a clear means to record economic data was established and is discussed below.

New policy introduced in the 1990's, combined with the addition of the full fee-paying overseas students saw significant increases in international student recruitment. The increase in income generated from international students became an integral part of university budgets (Fiocco, 2005).

Smart and Ang (1996) published that expected education export income would increase from US\$1.34 billion in 1996, to US\$3.56 billion by the year 2000.

The period from 1994 – 2000 international student numbers in Australian education grew from just over 100,000 to a little over 188,000 (AEI, 2000a). The total of 188,277 international students in 2000 represented a growth of 16% on 1999 data

(AEI, 2000a, 2000b), and generated \$3.7 billion for the Australian economy (AEI, 2000a).

By 2004, AEI (2004a) reported that there were a total of 322,776 international students in Australia, with 47% (AEI, 2004b) participating in the higher education sector, and a majority of students coming from China, South Korea, Hong Kong, India and Malaysia. For the period of 2004-2005 AEI (2005a) reported that international student numbers had increased by 7.0% to 344,815 students.

For the period 2003 – 2004, the Australian Chancellor's Committee (AVCC, 2003) recorded that the export of education contributed \$5.6 billion to the Australian Economy, with education ranked as the ninth highest export industry, and in 2004-2005 was recorded as the fourth highest export industry in Australia worth \$7.5 billion (AVCC, 2005).

In March 2008, AEI (2008a) announced that a contribution of \$11.7 billion in export income to the Australian economy in 2006-07 from international education activity, and that this growth in export income placed international education as the third highest export industry in Australia.

From January to July 2008 international student data showed 459,692 enrolments by full-fee international students in Australia on a student visa; an increase of 18.9% as compared to the same period in 2007 (AEI, 2008b). By September 2008 the Australian Bureau of Statistics made public that education exports totalled \$13.7 billion and that enrolments increased by 44% to July 2008 on the previous year to 142,316. (Rowbotham, 2008).

In Australia growth in international student numbers was steady for over a decade, with dramatic increases of 24.4 per cent between 2007 and 2008, and a further increase by 13.2 per cent in 2009 on 2008(AEI, 2009). As of 2009, there were 631,935 international student enrolments in Australia (AEI, 2009). The growth in international student numbers is represented in Figure 2.1 on the next page.

Colin Walter, CEO of Australian Education International (AEI) stated that the

significant growth number of international students studying in Australia had occurred since the introduction of the ESOS Act in 1991 from fewer than 50,000 international students to almost 500,000 in 2010 (Walters, 2011, p. 2).

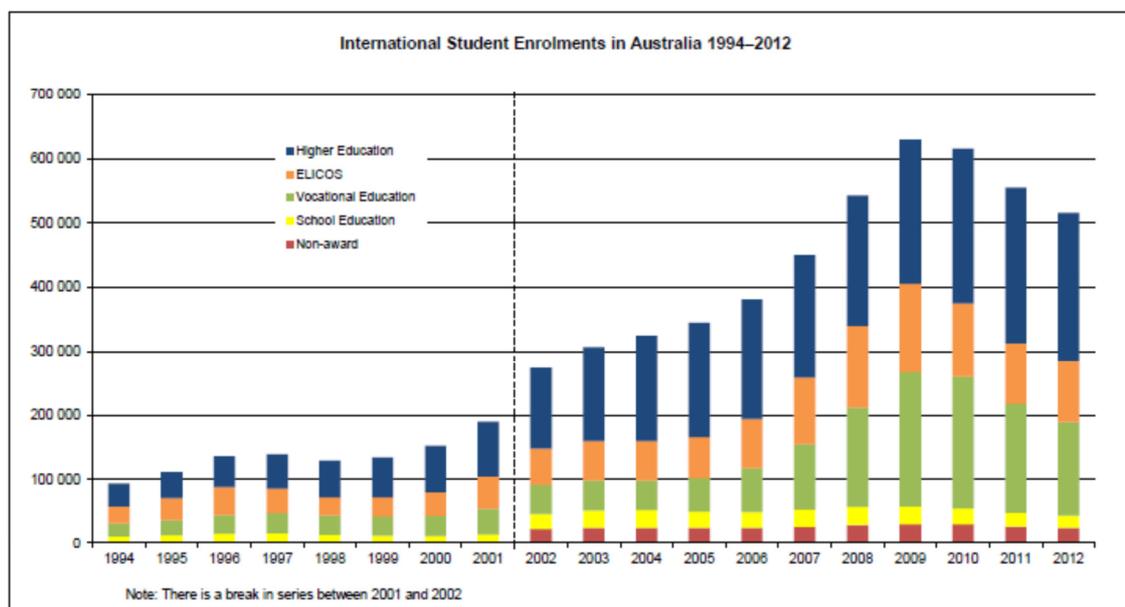


Figure 2.1: International Student Enrolments in Australia 1994 – 2012

Reprinted from “International Student Enrolments in Australia 1994 – 2012” by AEI, 2012a, International student data 2012, Retrieved from <https://aei.gov.au/research/International-Student-Data/Pages/InternationalStudentData2012.aspx>

According to Phillimore and Koshy (2010) international education as an export industry became Australia’s third largest, generating \$18 billion in exports in 2009 growing by 94% since 2004 and had become 50% larger than tourism-related travel industries.

International education is a major influence on the Australian Education system and economy. Asmar (1999) depicts international enrolments as the “financial salvation” of universities in Australia, and this is reflected in 2008 Australian Bureau of Statistics data in which education exports totalled \$13.7 billion to the Australian economy (Rowbotham, 2008) in that year, with \$18.6 billion in the 2009 – 2010 period and 16.3 billion (drop of 12.0% on 2009 – 2010) for the 2010 – 2011 period (AEI, 2011a).

International students are a significant component of the Australian higher education sector. According to Phillimore and Koshy (2010) international students comprise

32% of the higher education market; however they generate 57% of export revenue. Phillimore and Koshy (2010) stated that “spending by international higher education students and their visitors in Australia therefore has a substantial impact on the Australian economy” (Phillimore and Koshy, 2010, p.5).

The growth trends observed in international student numbers in Australia has also been experienced on a global perspective. According to Böhm, et al. (2002) one of the most significant features of the global education market over the 1990 – 2000 decade was the phenomenal growth in demand for international education. Böhm et al. (2002) continue to state that approximately 1.8 million international students were estimated to be in higher education institutions around the world in 2000, and given that this demand will increase it is forecast that 7.2 million international students may be in higher education institutions around the world by 2025.” More recent estimates expect this global demand to increase to approximately 5.8 million by 2020 (Böhm et al., 2004).

In August 2010, Phillimore and Koshy suggested that the international education sector was “under severe pressure” due to a number of national and international developments including a high Australian dollar, the recent global financial crisis, increased competition, reputational damage caused by college collapses and attacks on international students. Other pressures also surrounded the changes to visa rules and migration and political campaigning relating to immigration and population.

*Table 2.1: International Student Numbers by Sector*

Sector	2009	2010	Growth
Higher Education	211,242	227, 230	7.6%
VET	167,439	146,968	-12.2%
ELICOS	121,589	96,547	-20.6%
Other	31,640	31,118	-1.6%
Schools	27,145	24,047	-11.4%
Total	491,290	469,619	-4.4%

Reprinted from “International Student Numbers” by AEI, 2012c, Retrieved from <https://aei.gov.au/research/Research-Snapshots/Documents/2011051801.pdf>

AEI (2011b) reported an overall drop in international students, including a 6.5% increase in international students in Higher Education, providing a total of 469, 619 international students on a student visa in Australia in 2010. Table 2.1 (AEI, 2011b) on the previous page provides a breakdown of each educational sectors international numbers over the 2009 – 2010 period.

The decreasing trend continued into 2012 where AEI (2013b) reported a fall in international student numbers in all sectors which contributed to a decrease of 5.5 per cent on 2011 figures.

*Table 2.2: International student enrolments in Australia by country of origin (2012)*

Rank	Country	Higher Ed	VET	ELICOS	Schools	Non-award	Total
1	China	94,309	15,821	8,367	25,157	6,104	149,758
2	India	12,671	40,061	93	1,366	205	54,396
3	Rep of Korea	8,289	9,143	2,202	7,435	650	27,719
4	Vietnam	11,071	4,717	1,908	4,432	423	22,551
5	Malaysia	16,308	3,171	569	924	615	21,587
8	Brazil	755	5,306	191	8,556	284	15,092
11	Saudi Arabia	5,634	872	21	4,260	335	11,122
14	United States	2,409	1,453	78	27	5,584	9,551

Reprinted from Australia – Educating Globally Advice from the International Education Advisory Council by International Education Advisory Council (2013).

Recent AEI data (as cited in International Education Advisory Council [IEAC], 2013) from 2012 indicates that international students come to study in a number of education sectors within Australia with the top five countries of origin being from Asia (Table 2.2).

Leask (2005b) states that:

“economic rationales for internationalisation are also important and internationalisation is seen by many Australian universities as critical to success in an increasingly globalised society in which there are economic imperatives to sell

educational products and services in the world marketplace.”  
(p. 257)

It has been accepted that international students lack skills to satisfactorily complete their course (Muldoon, 2003) and have been found to have concerns in relation to their teaching and learning needs within a foreign learning environment (Myburgh, Niehaus & Poggenpoel, 2002). Chung, Kelliher and Smith (2006) state that there is a need to introduce tailored teaching and learning activities for international students who have not been educated within the Australian education system to allow a mechanism to improve the quality of education and maintain Australia’s competitive advantage.

This study seeks to improve the international student experience which may bring both academic and financial benefits to the Australian based international pathway environment.

### ***Australian based international pathway education***

It was in 2005 that AEI (2005b) identified international pathway education as being a unique feature of the Australian education system where little was known about the pathways and number of students within these pathway colleges. Bode (2013) discusses how these pathways have no one clear definition or agreed term for the institutions offering these pathways. However, publications by AEI have been able to provide data on student numbers in Australian based pathway education including international students.

From 2002 to 2005 (AEI, 2006), 594,113 students were identified as studying in Australia, where 169,302 students were identified as “multiple sector” students within any one of fifteen various pathway options (AEI, 2006).

In continuation to the 2006 study by AEI (2008c) provided further information on two groups of students identified as being within the pathway environment; group one consisted of students who studied in Australia in 2003 to 31 December 2005, and the second group consisted of students who commenced study in Australia in 2005 to 31 December 2007. With 102,478 students recorded in group one, and 103,622

students in group two, the research found that 64.5% of students remained in a single sector and the remaining 35.5% followed a “multi-sectoral pathway” (AEI, 2008c). These figures reinforce the relevance of pathway education within the Australian education environment.

Another paper by AEI (2007) suggested that up to 19% of all students in higher education were recorded as originating from an inter-sectoral pathway. AEI (2008c) describes that these international students that transition to further education choose to follow study pathways through the Australian education system, utilising the Australian Qualification Framework (AEI, 2008c). Another AEI report (AEI, 2008d) identified that of the 48,477 international students who completed their schools education, 28,547 (or 59%) international students continued further education within the Australian education system in the period between 2002 and 2006; and for those International students completing school in 2002 and 2004 over 80% went to study in the higher education sector in Australia, or via a pathway.

By 2011, AEI had identified that a majority of students were undertaking study in more than one educational sector in which “60 per cent of international students in higher education had studied in another sector previously and nearly two thirds of international students in Australian schools go onto study in the tertiary sector” (Bode, 2014; AEI, 2011c. p.1). 2013 research (AEI, 2013c) suggests that “53 per cent of international students in higher education had studied in another sector”.

*Table 2.3: Direct and indirect Inter-sector study pathways to Higher Education (2010)*

Inter-sector pathway*	Students	Share of total
Total in cohort	75,174	100.0%
Higher Education^	30,087	40.0%
ELICOS-Higher Education	33,322	44.3%
VET-Higher Education	10,666	14.2%
Other-Higher Education	8,109	10.8%
Schools-Higher Education	5,452	7.3%

\* the inter-sector pathway of students who recorded study in more than one sector are not mutually exclusive, therefore the individual components do not add to the total.

^ includes 152 students who first commenced in Higher Education and moved to another sector in 2010.

Reprinted from “Research Paper: Study pathways of international students in Australia” by Australian Education International, 2011c.

The AEI (2011c) paper continues to summarise statistics in relation to pathway student numbers and highlights a key set of data relevant to this study. A total of 75,174 students commenced Higher Education studies in 2010, of which more than half entered indirectly via a pathway option as presented in Table 2.3 (previous page).

Table 2.4 provides the total number of international students in the pathway sector leading to Higher Education in 2011 (AEI, 2012c). The table provides supporting evidence towards the complex pathways to higher education and highlights the importance of the international pathway sector to higher education sector in Australia. Adams, Burgess and Phillips (2009) identified that more research is required to measure pathway programs including risks, benefits and associations globally especially given that universities appeared to place greater reliance on their own pathway programs rather than other recruitment channels.

*Table 2.4: Top 10 nationalities and their direct and indirect inter-sector study pathway to Higher Education*

<i>Inter-sector pathway</i>						
<i>Nationality</i>	<i>Higher Education only</i>	<i>ELICOS-Higher Education</i>	<i>VET-Higher Education</i>	<i>Other-Higher Education</i>	<i>Schools-Higher Education</i>	<i>Total</i>
	Proportion of total for each nationality					Number
China	20.2%	65.9%	9.8%	17.8%	13.1%	25,512
Malaysia	80.5%	2.9%	5.5%	9.6%	4.7%	4,835
India	59.7%	18.8%	34.6%	1.3%	0.3%	3,484
Vietnam	26.6%	62.1%	17.8%	11.4%	12.6%	3,346
Nepal	12.1%	28.8%	85.9%	0.5%	0.1%	2,865
Indonesia	52.4%	22.0%	13.2%	19.5%	2.9%	2,559
Republic of Korea	25.6%	57.1%	18.3%	10.7%	18.2%	2,506
Singapore	86.9%	0.3%	1.8%	9.9%	1.8%	2,382
Saudi Arabia	11.2%	87.7%	5.9%	19.6%	0.0%	1,769
Thailand	25.2%	67.1%	19.4%	4.6%	7.0%	1,172
<i>Legend (% of total):</i>	50% - 69%	> 69%				

Reprinted from "Study pathways of international students in Australia", by Australian Education International, 2012c.

This section of this chapter has highlighted the significant benefits provided to the Australian economy by the international pathway education sector; however it has been noted on a number of occasions within this chapter that to maintain and further

grow the international education sector there are still many improvements that can be made to improve the success and positive public opinion of students in the Australian international education sector.

#### **2.4 International pathway environments**

Pathway education is a relatively new education sector within the Australian education landscape, and the literature described within this chapter indicates substantial economic value to the Australian education system. Adams et al. (2009) described that comparatively few benchmarks were in place to assess the impacts of pathways programs and how the academic performance of international students in Australia are affected. The International Education Advisory Council (IEAC) described these pathways as being:

“vital in preparing students to undertake higher level study and the innovative activities of Australian institutions to package courses have been a key feature of Australia’s success” (IEAC, 2013, P.11)

In 2003, nine various types of pathways (Leask, Ciccarelli & Benzie, 2003) were identified within the Australian education sector and elaborated by providing a framework (Table 2.5) for discussing pathways to tertiary education. The framework includes the following types of pathways: Foundation Programs, Diplomas with Intensive Language Preparation, Articulation through TAFE, Articulation through Transnational Partners and Programs.

These descriptions of pathways presented in Table 2.5, starting on the next page, have been developed on the notion of non-test entry criteria where the success of the student in the pathway and the use of English as the language of teaching are used by universities for admission purposes in combination with evidence of demonstrate successful completion of secondary education and a formal English test. The standard of entry level required by these pathways students is likely to vary from university to university (Adams et al., 2009).

Adams et al. (2009) also describe that some pathway providers also run complete degree programs through a franchising or licensing model, in which these programs will have similar non-test entry requirements as the study pathway programs themselves.

*Table 2.5: Non-test study pathways*

<b>Type of pathway</b>	<b>English Language Testing</b>	<b>Comments</b>
Foundation Programs	Successful completion usually eliminates the need for a student to sit an English test (non-test entry). Some programs provided by universities; others by agreements with other providers.	Many programs include specific English language development units.  A range of programs, on- and offshore, and Y12 in some countries, are recognized for academic and language entry to university. The academic level for entry may be below what would be required for university.
Diplomas with Intensive Language Preparation	As for Foundation programs.  Language preparation may be more critical because of advanced standing entry of 12–18 months into a degree.	As for Foundation programs.  The definition of intensive language preparation does not seem to be appropriate, as most programs are unlikely to have 20 hours per week of ELT. This also applies to Foundation programs.
Articulation through TAFE	A non-test English language pathway, often into Year 2 of university.	The competency basis of TAFE programs, often with short answer responses, may not prepare students adequately for university study, with the likelihood of higher/more stringent language requirements on the part of the university/tertiary institution.
Articulation through Transnational Partners and Programs	In general, a non-test entry pathway, even if IELTS is required for visa purposes.	The destination university may have little or no control of English standards.
Articulation through Associate Degrees/Diplomas	Emerging non-test pathway, including programs offered by universities in HK through continuing education schools. May have English requirements within them but language of instruction may be uncertain.	This framework has not included tertiary-level diplomas offered in countries such as Singapore, where the medium of instruction is English and this is acceptable for entry for by institutions in most instances.
Secondary School academic pathways	Conventional final year of secondary school or foundation programs.	NESB students entering the school system may have entered on the basis of school reports or other non-test entry mechanisms.

*Table 2.5: Non-test study pathways (cont.)*

The International Baccalaureate (IB)	Consists of a 2-year program recognized for higher education entry globally.	To enter a Baccalaureate Diploma offered in Australia, international students who do not have English as their first language, seem to be required to sit the English Language Assessment Test provided by the Australian Assessment Services (ASEAS).
<b>Type of pathway</b>	<b>English Language Testing</b>	<b>Comments</b>
Bridging Programs	Often 1–2 semester programs into Master’s degrees. Likely that students have met English requirements by other tests (normally other than IELTS or TOEFL) or non-test mechanisms.	
Formal secondary English Subjects in an overseas System	Students with acceptable results in the highest secondary school level of English are accepted as non-test entry students.	Used typically for Northern European countries where English is a strong second or third language and is compulsory at some level in the secondary school curriculum.

Reprinted from “Pathways to tertiary learning: a framework for evaluating English language programs for undergraduate entry” by Leask et al., 2003, *EA Journal*, 21 (1), 17-30.

These pathway types indicate that a number of course levels are available to students within the international pathway learning environment. Therefore this study has considered a structured approach in which the AQF level of the course, the field of study and period of study have been identified as possible variables for this study to define the pathways found within the Australian based international pathway learning environment.

Fiocco (2006) undertook a study to investigate student perceptions and reasons for why students choose to undertake studies within a pathway program. With a sample of 495 students from Australia and the UK, Fiocco (2006) reported that 55% of international students selected their pathway based upon the reputation of the university while 32% chose their pathway based on both pathway college and university reputation.

Within Fiocco’s (2006) study a number of factors were identified in terms of the factors influencing choice of pathway colleges. In descending order of student preference the top four factors identified in this study as influencing a student’s choice of college were the pathway, destination, reputation, and agent

recommendation. During the same study, Fiocco (2006) examined the expectations of 149 students who had completed a pathway program and had entered into a mainstream university program and found that to a high degree, student expectations had been met.

Olsen and Smart (2007) reported on a 2005 benchmarking activity in which 23 universities (of 26 participating universities) provided data on recruitment channels. The study collected data on 49,615 of 76,200 student commencements during the study period. The study showed (Table 2.6) that universities had a greater level of trust in recruiting students from their own pathway programs rather than for students coming in via other sources. The study by Olson (as cited in Adams et al., 2009) provides validation to Fiocco's (2006) study that a majority of students within the pathway environment tended to choose and have expectations that the pathway environment would facilitate the students need to access a university place.

*Table 2.6: University benchmarking report of recruitment channels*

<b>Recruitment channel</b>	<b>Percentage of applicants receiving offers %</b>	<b>Percentage commencements to applications %</b>	<b>Number of applications processed for one commencement</b>
<b><i>Recruited in Australia</i></b>			
University Pathway	93.8	60	1.7
Directly	71.7	37.9	2.6
Agent other than IDP	74.3	33.4	3.0
IDP as Agent	71.9	33.4	3.3
<b><i>Recruited Overseas</i></b>			
University Pathway	79.4	60.2	1.7
Directly	68.1	27.2	3.7
Agent other than IDP	76.1	25.4	3.9
IDP as Agent	70.2	17.0	5.9

Reprinted from "Pathways in International Education: An Analysis of Global Pathways Enabling Students to Articulate from Secondary School to Higher Education in a Transnational Context" by Adams, et al., 2007 in *Education Across Borders*.

The studies by Fiocco (2006) and Olson (as cited in Adams et al., 2009) have provided some insight into student's intent and expectations within the international pathway environment. These studies represent two of only a few studies involving

the international pathway environment and indicate that this study should also consider student intent.

Bode (2013) reflects on small amount of literature relating to pathway colleges and considers “that little has been written on the outcomes of students from pathway colleges” (p. 4) and highlights the value of pathway providers for the university sector in which “it would be beneficial to conduct further research into this phenomenon in order to develop strategies strengthen student pass rates and improve the student experience” (p. 8).

This thesis is unique in that it will investigate student perceptions of teacher-student interactions within Australian based pathways learning environments.

## **2.5 Recent trends in Australian International Education Research**

Following the growth of internationalisation in the 1990's, research in the field of international education emerged in a timely fashion in which a shift from rote learning to a free learning environment was often found to be difficult by international students (Delaney, 2002).

Literature describes that this difficulty encountered by international students is as a result of many student countries of origins not sharing the same education philosophies which underpin the Australian teaching and learning system (Varga-Atkins & Ashcroft, 2004). Delaney (2002) found that language proficiency, and differences in culture, values and goals led to international student feelings of culture shock when entering the higher education environment and the provided the potential for alienation, loneliness and withdrawal (Tomich, McWhirter & Darcy, 2003). MacKinnon and Manathunga (2003) discuss how the dominant cultural literacy in a western context relies on a western template of knowledge. This dominance can inhibit internationalisation of the curricula unless it is inter-culturally responsive and addresses the serious implications of assessment driven by the dominant culture's literacy.

Volet and Ang (1998) identified a lack of interaction between Australian (domestic) students and international students, especially with international students of an

Asian background. A study of 17 Australian and 23 international students studying second year business were required to complete two assignments in groups. The study focussed on the student perceptions of the factors affecting the formation of each study groups. The study found that some student groups were culturally homogenous whilst some were not, and that factors such as cultural-emotional connectedness, language, pragmatism, negative stereotypes and ethnocentric views impacted significantly on the interaction. On conclusion, the study determined that the interaction process between Australian and international student's is a two-way process in which both share some responsibility in the lack of cross-cultural interaction.

Robertson et al. (2000) found that international students felt isolated from Australian classmates and that this created one of the most important problems in the international student tertiary study experience. This study also reported that international students were not able to gain the level of participation in Australian student activities that they desired and needed. Robertson et al. (2000) indicated that international students used a range of strategies to overcome this isolation and lack of participation by remaining open minded and trying to meet and make new friendships; however this tended to be difficult when making friends with Australian students.

In 2000 Smith, Lambert, Knox, Morey and Foster, from Australian Education International (AEI) recommended that the level of tolerance between international and Australian students could be improved by developing programs designed to increase the interaction between students. Research into international student experience at Australian universities by Volet (1997; 1999) and Smart, Volet and Ang (2000) indicated that improvement could be achieved through fostering social cohesion.

Caruana and Spurling (2007) described the research fields of teaching and learning for international students and internationalisation of the curriculum as being unrelated and laden with 'mixed messages'.

“While higher education is an increasingly internationalised activity, data limitations have to date constrained comparative analyses. Specifically, very little student-level and process or outcomes-focused data is available.” (Coates, 2010, p.1)

This suggestion observation by Coates (2010) is supported when student satisfaction tools from representative Australian higher educational institutions are briefly investigated. What is apparent in this brief analysis is that each institution appears to have developed similar, yet at times noticeably bespoke, instruments to measure factors within their educational environment, or have utilised pre-existing student feedback questionnaires.

For example:

- Curtin University of Technology utilises the *Curtin Annual Student Survey* (CASS - <http://planning.curtin.edu.au/mir/cass.cfm>),
- Monash University uses the *Monash Experience Questionnaire* (MEQ - <http://opq.monash.edu.au/us/surveys/meq/index.html>),
- University of Southern Queensland uses the *Course Experience Questionnaire* (CEQ - <http://www.uq.edu.au/teaching-learning/student-evaluation>), and the
- University of Western Sydney uses the *Student Satisfaction Survey* (SSS - [http://www.uws.edu.au/strategy\\_and\\_quality/sq/surveys](http://www.uws.edu.au/strategy_and_quality/sq/surveys)).

More recently, educational institutions have subscribed to the use of *Australasian Survey of Student Engagement* (AUSSE) which employs the use of the *Student Engagement Questionnaire* (SEQ) in which student responses are measured against six engagements scales and seven educational outcomes which have been respectively represented in Table 2.7 and Table 2.8 (next page).

*Table 2.7: Six Engagement scales of SEQ*

<b>Scale</b>	<b>Description</b>
Academic Challenge	Extent to which expectations and assessments challenge students to learn
Active Learning	Students' efforts to actively construct their knowledge
Student and Staff Interactions	Level and nature of students' contact with teaching staff
Enriching Educational Experiences	Participation in broadening educational activities
Supportive Learning Environments	Feelings of legitimation within the university community
Work Integrated Learning	Integration of employment-focused work experiences into study

Reprinted from *Engaging Students for Success: Australasian Student Engagement Report Australasian Survey of Student Engagement*, by Coates, H, 2010, Australian Council for Educational Research.

*Table 2.8: Seven Educational Outcomes of 2009 SEQ*

<b>Scale</b>	<b>Description</b>
Higher Order Thinking	Participation in higher-order forms of thinking
General Learning Outcomes	Development of general competencies
General Development Outcomes	Development of general forms of individual and social development
Career Readiness	Preparation for participation in the professional workforce
Average Overall Grade	Average overall grade so far in course
Departure Intention	Non-graduating students' intentions on not returning to study in the following year
Overall Satisfaction	Students' overall satisfaction with their educational experience

Reprinted from *Engaging Students for Success: Australasian Student Engagement Report Australasian Survey of Student Engagement*, by Coates, H, 2010, Australian Council for Educational Research.

What is important to this study, is that the instruments identified so far appear to collect a breadth of data on student satisfaction within and across Australian higher education institutions, but there appears to be a lack of depth to ask 'why or how' trends occurred within data. An AEI report (Edwards, 2008) stated "it is clearly important for universities to understand how the experiences of international students differ from domestic students" (p. 2). A study by Dorman (2014) using the CEQ and College and University Classroom Environment Inventory (CUCEI) suggested that if university staff want to improve students' CEQ scores, then they should pay closer attention to the quality of the psychosocial learning environment in classrooms.

The 2009 AUSSE survey involved 35 university institutions across Australia and New Zealand (Coates, 2010) providing what was referred to as "the largest ever

education focused collection of data from currently enrolled higher education students in Australasia” (Coates, 2010, p iv). This type of study provides a large scale opportunity to collect data on general student satisfaction measures, but appears to fall short of investigating associations in student satisfaction.

Krause, Hartley, James and McInnes (1995) support the findings of an earlier AUSSE study and highlight that international students were less satisfied that their expectations had been met compared to their domestic counterparts. The report continued to describe that international students were more critical than their domestic students in the teaching they received, and 46% of international students reported that their university had not lived up to expectations compared to 27% of domestic students.

AEI (2008e) completed a study on international satisfaction in which it was concluded that for up to a year after course completion international higher education students were generally satisfied with the experience of studying and living in Australia. A similar survey in 2012 (AEI, 2013d) concluded that 84% of international students were satisfied with their study experience while 86% of all international student who responded to the survey were either satisfied or very satisfied with their overall living experience in Australia.

According to ACER (2008b) international students, who are first within their family to arrive in Australia, tended to have the greatest trouble when engaging with their course and institution.

Other publications by ACER (2008a) indicate that satisfaction ratings across student groups varies, in which international student satisfaction rates are comparatively low against other student groups which “ is concerning given the importance of these students for Australasian higher education” (ACER, 2008a, p. 6).

Murray, Hall, Leask, Marginson and Ziguras (2011) commented that the 2008 AUSSE survey found that in over 29 universities in Australia and New Zealand approximately 50% of students said they had had very little (if none at all) conversation with those who are culturally or ethnically ‘different’ during their entire

study period. This ACER report (as cited in Murray et al., 2011) confirmed that this issue was not unique within the Australian higher education environment. The paper suggests that the isolation perceived by international students is a result of the actions and attitude of domestic students and staff, and that cross-cultural interaction and collaboration could be a result of international student behaviour rather than those of domestic students.

Fiocco (2005) provides one of very few studies directly involving the perceptions of international students within the international pathway environment. Fiocco (2005) collected 149 responses from students within the higher education environment having come through a pathway provider, and 165 responses from students currently within an international pathway environment. The data collection completed in 2003 found that students had an overall positive evaluation of their study experience within the pathway learning environment.

Crisp et al. (2009) conducted a ten year longitudinal national study of Australian first-year students' attitudes and experiences. The study highlighted that Australian students are relatively satisfied with university experience, in which Australian student expectations and experiences were comparatively aligned with American studies. Reported negative aspects related to Australian students being less engaged with full-time study and felt that teachers were not willing to spend time with individual students or were not readily available. This study also found that first-year students tend to be adequately informed about university culture and that, on the whole, expectations and experience are reasonably aligned. However, according to Crisp et al. (2009) "some subgroups of students did report that their experiences have not matched their expectations, in particular international students" (p 14).

According to Lu, Chin, Yao, Xu and Xiao (2010), 53% of undergraduate and 57.87% of postgraduate international students indicated that Australian teaching methods were the main difference between the universities in their home countries and in Australia.

Colin Walters, CEO of AEI, reported (Walters, 2011) that the results from the 2010 International Student Survey (ISS) indicate that most international students have a

positive study experience in Australia.

Walter (2011) identified that the top four factors influencing a student's decision to study at an Australian higher education institution were the quality of teaching (94 per cent), the reputation of the qualification (93 per cent), personal safety (92 per cent), and the reputation of the institution (91 per cent) and that these results are reflected in internationally benchmarked surveys such as International Student Barometer (ISB).

*Table 2.9: Factors influencing interaction between Australian and international students*

Factors	Australian students	International Students
Environmental factors	<ul style="list-style-type: none"> <li>teaching and learning arrangements and extent to which they require and reward interaction</li> <li>local political context</li> </ul>	<ul style="list-style-type: none"> <li>teaching and learning arrangements and extent to which they require and reward interaction</li> <li>local political context</li> <li>living arrangements</li> </ul>
Resources available to students	<ul style="list-style-type: none"> <li>support available for relevant skills development</li> <li>time</li> <li>money</li> </ul>	<ul style="list-style-type: none"> <li>support available for relevant skills development</li> <li>time</li> <li>money</li> </ul>
Skills and attitudes	<ul style="list-style-type: none"> <li>cross-cultural communication skills</li> <li>attitudes towards international students</li> <li>attitudes towards other cultures</li> </ul>	<ul style="list-style-type: none"> <li>cross-cultural communication skills</li> <li>English language competence in different situations i.e. both academic and social English language skills</li> <li>attitudes towards Australian students</li> <li>attitudes towards contact with Australian students</li> </ul>
Motivation and reward	<ul style="list-style-type: none"> <li>strength and range of factors making interaction with international students desirable</li> <li>the benefits and rewards for interactions with international students</li> </ul>	<ul style="list-style-type: none"> <li>strength and range of factors making interaction with Australian students desirable</li> <li>the benefits and rewards for interactions with Australian students</li> </ul>

Reprinted from "Venturing into the unknown—a framework and strategies to assist international and Australian students to learn from each other, in Learning for an Unknown Future", by Leask, B., Proceedings of the 26th HERDSA Annual Conference, Christchurch, New Zealand, 6-9 July 2003.

Leask (2003) found that of twelve factors which influence contact only two are significantly different (shaded in Table 2.9 above). For international students, Leask (2003) suggests that these two influences are the development of a campus environment and culture which motivates and rewards interaction across cultures and

the development of skills and attitudes to facilitate cross-cultural communication both inside and outside class for all students.

According to Leask (2005a) there are three main contradictions existing in the internationalisation of higher education; where approaches to internationalisation are focussed upon the preparation of graduates for participation in an increasingly globalised society; where internationalisation in higher education is primarily concerned with the recruitment of international fee-paying students; and where there are multiple agendas.

“The connections and relationships between internationalisation and higher education are complex and this complexity is reflected in the ways in which internationalisation is spoken about – the discourses that construct it. Internationalisation defies orderly, organized and rational analysis. Its meaning is not fixed, in place or time. On the contrary, different groups construct it differently at the same time in the same place, at the same time in different places, and at different times in different places.” (Leask, 2005a, p. 1)

Leask (2005a) continues to identify that these discourses are complex however complement each other forming a holistic picture of internationalisation at the University of South Australia. Leask (2005a) proposes that these discourses of internationalisation are most appropriately responded to via academic staff development and the provision of instruments to support change in practices within their own institutions.

Marginson and Eijkman (2007) concluded that the pedagogical, curricular and implications of greater diversity such as cultural background, national origins, native languages and educational preparations in the student body and internationalisation of the curriculum content appear to be underdeveloped. It is also proposed that resources may not have been available to develop inventive approaches to curriculum and pedagogies in classrooms that are more multicultural (Marginson & Eijkman, 2007).

A study by Teekens (2002) investigated the prospect of creating a profile of ‘the ideal lecturer’ for international higher education. The study found that an international lecturer should have further knowledge and skills than an average ‘national’ lecturer, and that an international lecturer should have a very international attitude and cultural awareness to the betterment of students. Teekens (2002) describes the ‘the ideal lecturer’ as a person who knows and can create conditions within the classroom which allows students enough room to learn from each other.

Leask (2005a) developed a framework for staff and student development (Table 2.10), and acknowledges that is not necessarily an end point but rather a framework to evaluate the effectiveness of strategies that sit within it.

*Table 2.10: A framework for staff and student development of international perspectives*

	<b>Teachers as intercultural learners</b>	<b>Teaching as an intercultural conversation</b>	<b>Teachers as managers of the intercultural learning environment</b>
<b>Students as intercultural learners</b>	Strategies for developing intercultural and international perspectives in and out of class	Setting intercultural learning goals within your profession/course	Providing/using feedback for intercultural learning (students)
<b>Learning as an intercultural conversation</b>	Communicating effectively interculturally in and out of class	Making the most of intercultural talk in and out of class to achieve your goals	Strategies to get the most out of group work for intercultural learning
<b>Students as managers of the intercultural learning environment</b>	Resources for intercultural learning	Communicating effectively across cultures in and out of class	Assessment of international perspectives (staff) How will I know how I’m going? (students)

Reprinted from “Competing rationales for and discourses of internationalisation: Implications for academic staff development”, by Leask, B., 2003, Proceedings of the 28th HERDSA Annual Conference, Sydney, 253-259.

In undertaking research at the University of Technology Sydney, Hutcheson and Tse (2004) suggested that if differences in student approach to study and academic skills can be defined, then this could result in adjustments to teaching techniques which may reduce these differences towards effective teaching for all students. This study may provide insight into Hutcheson and Tse’s observation as this study seeks to investigate associations of international student perceptions of teacher interpersonal

behaviour within the multicultural environment of the Australian based international pathway college.

It is also suggested by Leask (2005a) that the framework be reviewed regularly and used to provide improved services to support international perspectives in all students and to provide professional development and services for all students.

Of importance to this study is that these six primary themes and nine sub-groupings involve aspects of the classroom environment which are relevant to this studies objective relating to interpersonal teacher-student behaviour, thus providing support to the development of this study in relation to international student perspectives.

In 2011, Leask conveyed that the internationalisation of curriculum requires the attention of teacher to think outside traditional boundaries, challenge common beliefs and paradigms to improve the finer details of teaching, learning and assessment, innovation, creativity and critical thinking of students and staff in an internationalised curriculum.

Volet and Ang (2012) discussed that internationalisation of higher education is a major educational goal of universities to prepare students to function in an international and inter-cultural context. The internationalisation of higher education generates cultural diversity which creates ideal social forums for inter-cultural learning. Given the positive aspects of internationalisation, Volet and Ang (2012) identified that there is still a lack of interactions between local and international students which creates one of the most disturbing aspects of the internationalisation of higher education in Australia.

This chapter has been broadly been informed by research and information available within the field of Australian international higher education. It has also drawn upon limited literature available directly relevant to the international pathway education sector.

A comprehensive review of the literature reveals a complex Australian international higher education environment, in which the sector appears to struggle to achieve

consensus on the definitions of terms such as 'internationalisation' (Knight, 1997), and the level of internationalisation which applies to institutions (Well, 2003). Change in Australian government policy and funding has led to privatisation (Currie & Vidovich, 2000) and the creation of pathway colleges (Fiocco, 2005) within the Australian international higher education sector.

The literature describes how within the complex Australian international education environment, varying views have been expressed in relation to student experience where observations indicate high satisfaction ratings from international students (AEI, 2013d) while other studies indicate a need to further investigate comparatively lower satisfaction rates of international students (ACER, 2008a).

More recent available literature has focussed upon formulating a structured approach to improve the student experience within this complex environment (Leask, 2005a). Literature reports that student experience may be enhanced through profiling the 'ideal' teacher within the international higher education sector (Teekens, 2002), developing the pedagogies in the classroom (Marginson & Eijkman, 2007) and adjustment of teaching based upon differing student approach to study (Hutcheson & Tse, 2004).

The importance of the international student to the Australian economy (Phillimore & Koshy, 2010) has been clearly promoted within this thesis. Literature has also described how the population of international students through various pathway opportunities (AEI, 2008c; 2011c) has grown, and that these pathways are now of importance to the university sector (Adams et al., 2009). This thesis reflects the economic, social and academic discourses created and identified by Leask (2005b) as a result of internationalisation of higher education in Australia. An abundance of information relating to the economics of international education has been reported in relation to international students (AEI, 2013a), whilst only a scattering of literature has been sourced which reflects the social considerations of a growing international education sector (Smart, Volet & Ang, 2000). Recent literature indicates that current academic conversations are focused around improving the student experience through investigating the lack of interactions between local and international students (Volet & Ang, 2012) and through staff and student development of international

perspectives (Leask, 2005a; 2011) which may lead to a greater understanding and improvement in student perceptions of the learning environment.

The trends observed in international educational in Australia, and globally, highlights the financial, pedagogical and social importance in educational research of international learning environments. This study provides a timely investigation into international student perceptions of teacher interpersonal behaviour within the Australian based international pathway sector; and to a more general extent may be applicable to the broader Australian international education sector.

The next section of this chapter will reflect upon the learning environment and its influence on student attitude and success, and explore how learning environments can be influenced by the motivation and attitude of the teacher, given that research presented in this thesis so far has indicated that cultural background (Burns, 1991; Jones, Robertson & Line, 1999; McInnes, 2001; Rickards, 1998; Ryan, 2000), and language (Andrade, 2006) may influence international student perceptions and success in a foreign learning environment.

The next section of this chapter will now review the theoretical framework for this study and provide a selected questionnaire tool to measure international student perceptions of teacher-student interactions within the Australian based international pathway learning environment.

## **2.6 Theoretical framework of the study**

Student perceptions of the classroom learning environment is influenced by the teacher-student interactions and conceptualisations which “strongly influences student achievement” (Fraser, 2001).

Rutter, Maughan, Mortimore, Ouston and Smith (1979) found that students who complete high school spend approximately 15,000 hours of time in the classroom. Fraser (2001) reveals that university graduates spend nearly 20,000 hours in an educational learning environment. Fraser (2001) reflects on the significant amount of time this is for students, and one in which the influence of the learning environment can be sustained and en-cultured over time to reinforce its effects if any.

This literature review seeks to identify literature from the past three decades of research and findings in learning environments which have origins in the 1930's, and use these past discoveries, trends and themes as a theoretical framework for this study.

### **2.6.1 Origins of Learning Environment Research**

Findings by Kurt Lewin (1936) allowed for the development of the notion that the environment and interactions with personal behaviour of individuals are strong determinants of human behaviour.

Murray (1938) took the direction of Lewin's research and introduced the term alpha press and beta press. Alpha press and beta press describe the assessment of an environment through the views of an observer and an inhabitant respectively. Murray (1938) also proposed the needs-press model which defines the person and environment as a common entity, in which the characteristics of the person is to achieve a goal, and the environments characteristic is either optimistic or pessimistic to the persona and needs of the person.

Work by Pace and Stern (1958) allowed the needs-press theory to become exposed and popular with the development of the Lewinian formula (Lewin, 1936). This formula summarised the needs-press theory where human behaviour (B) is a function ( $f$ ) of the environment (E) and the personality of the individual (P).

$$B = f (P, E)$$

1956 saw Stern, Stein and Bloom further develop and distinguish between alpha press and beta press. Their work developed the notions of private beta press (idiosyncratic view that each person has of the environment) and consensual beta press (shared view of members of a group hold about the environment).

Fraser (1998a) suggested that in designing classroom environment studies, researchers must decide whether their analysis will involve the perception of scores

obtained from individual students (private press) or whether these will be combined to obtain the average of the environment scores of all the students within the same class (consensual press). It is therefore important that the researcher decides on learning environment instrument that best matches the information that they wish to interpret. Another consideration should also be to identify either on alpha or beta press (consensual or private) to ensure that statistical analysis and significance testing is conducted using correct information gathered. The student consensual beta press perspective of classroom learning environments will be utilised in this study.

In 1968 Walberg and Anderson established the use of assessments on learning environments to evaluate the Harvard Project Physics. The development of social climate scales through the *Classroom Environment Scale* (CES) by Moos and Trickett (1974) through work in psychiatric hospitals allowed first insights into perceptions of interpersonal behaviour in the context of learning environments and other institutional environments.

Hargreaves (1972) describes that a teacher is one who is principle in creating the climate in a classroom in which a student's response is largely influenced by the teacher's behaviour. Khine and Fisher (2003) stated that teacher-student interactions had become a theoretically influential determinant on student learning.

The work of these early pioneers of learning environment research generated a plethora of publications from which current theoretical perspectives emerged. It is from these publications and research for which a suitable tool to assess the learning environment of Australian based international pathway institutes will be selected.

### **2.6.2 Development of Learning Environment Instruments**

Prior to implementing an instrument to assess the classroom learning environment it is important to understand the dynamics of a learning environment. There are two major levels of analysis often used to understand learning environments; Private and Consensual Press (Fraser, 1998a) which was discussed earlier in this chapter, and School level versus Classroom level (Fraser & Rentoul, 1982).

Fraser and Rentoul (1982) studied the psychological aspects and distinguished between school or school level environment, and classroom or classroom environment. Even though the two environments develop together, there remains a remarkable independence (Fraser, 1998a), the school and classroom environment can be distinguished by the fact that the school environment also encompasses administration and involves association with higher education institutions. Fraser (1998a, 1998b) acknowledges that there is independence between classroom and school environments; however there are also desires to break away from these traditions and allow confluence of the two areas (Fraser, 1998a). This study will utilise the concept of the classroom as the level of the learning environment.

Having established that this study will utilise the student consensual beta press perspective of classroom learning environments, the following section will describe the range of instruments which have been developed to assess the nature of quality of classroom learning environments. This review of developed instruments will reflect upon research and literature emanating from the 1950's to the early 2000's, in which the instruments discussed have been influenced by the seminal work conducted by Moos (1974).

### ***Learning Environment Inventory (LEI)***

The *Learning Environment Inventory* (LEI) was developed in the 1960's and is associated with the Harvard Project Physics. The LEI has been used in research (Fraser, Anderson & Walberg, 1982; Walberg & Anderson; 1968) in which the instrument functions by allowing a level of respondents from agreement to disagreement with each statement. The inventory uses a four point Likert type scale (Likert, 1932) for student responses of strongly disagree, disagree, agree and strongly agree, in which responses are sometimes placed in reverse. The LEI comprises of 16 scales with 105 statements, resulting in seven statements (items) per scale.

The LEI was primarily identified by Fraser and Walberg (1991) as a predictor of learning in social psychological theory, and is still used for secondary school assessment of learning environments. The LEI allows researchers to study the learning environment from the perspective of the student, rather than through the observations of the researcher. Majeed, Fraser & Aldridge (2002) suggested that this

tool was difficult for students for whom English is not their first language.

### ***Classroom Environment Scale (CES)***

The *Classroom Environment Scale* (CES) instrument originated from work by Moo's in (1979) and Moo's and Trickett in (1987) in a number of varying environments including psychiatric hospitals, school classrooms and universities, and has been further validated by Fisher and Fraser (1983). The responses to statements consisted of only true or false answers. The final publication of the CES comprised of a survey which utilised a test manual, questionnaire, answer sheet and a hand scoring key. The tool consisted of 9 scales with ten questions per scale totalling 90 statements.

The CES is primarily used in the assessment of secondary education learning environments from the perspective of participant interaction (Raviv, Raviv, & Reisel, 1990). Moos and Trickett (1974, 1978) used the CES to examine behaviour of teachers, teacher-student and student-student interactions (Rickards, 1998).

### ***Individual Classroom Environment Questionnaire (ICEQ)***

Rentoul and Fraser (1979) developed the *Individual Classroom Environment Questionnaire* (ICEQ) and Fraser (1998b) completed a publication which outlined the development of the ICEQ. This survey is used to distinguish individual classrooms from conventional classrooms via the use of open based enquiry. It includes the extensive interviewing of teachers and students, and incorporated an answering system on a five point Likert type scale to each statements; these being almost never, seldom, sometimes, often and very often. In some instances the five point scale was reversed.

The original ICEQ (Rentoul & Fraser, 1979) comprised of 15 items with 5 scales (a total of 75 items) with the final version of the ICEQ consisting of 50 items with 5 scales (10 items per scale).

A short form (Fraser, 1990) of the ICEQ was also developed which retained the five point scale with a reduced 25 items, in which the items are evenly distributed amongst the scales, with the same positive and negative worded item representation.

***My Class Inventory (MCI)***

The LEI was modified (Anderson & Walberg, 1968; Fraser, Anderson & Walberg, 1982; Walberg & Anderson, 1968) to develop a simplified instrument for assessing classroom environments called the *My Class Inventory (MCI)*.

The MCI has been used to assess primary classrooms and improve comprehension (Anderson & Walberg, 1982; Fisher & Fraser, 1981; Fraser & O'Brien, 1985). The original MCI comprised of 45 items, which was later reduced by Fraser and Walberg (1991) to only 38 items within 5 scales, which incorporated simplified wording for the audience. The answering system was reduced to a 'yes' or 'no' response. The answers were placed on the same document, unlike the original LEI system.

Fraser and Walberg (1991) found that the MCI reduced student fatigue and Fraser and Walberg (1995) found that the same instrument was useful for students who had difficulty reading. Goh, Young and Fraser (1995) further modified the MCI to a three answer system with the response of seldom, sometimes and most of the time. This modified version also included a task orientation scale.

***College and University Classroom Environment Inventory (CUCEI)***

Fraser, Treagust, Williamson and Tobin (1987) developed the *College and University Classroom Environment Inventory (CUCEI)* as a suitable instrument for post-secondary education classroom environments.

The CUCEI is comprised of seven scales. These seven scales of Personalisation, Innovation, Student Cohesiveness, Task Orientation, Individualisation, Involvement and Satisfaction (Fraser, Treagust, Williamson & Tobin, 1987) cover the three general categories of dimensions identified by Moos (1974). Each scale of the CUCEI has seven items with four point Likert type response system. These responses are strongly agree, agree, disagree and strongly disagree. For half of the items the responses are reversed. The CUCEI was created using four criteria; an economy of data (response and processing); selection of relevant items for the post-secondary audience; associations to Moo's (1979) three general dimensions; and finally a revision of relevant items available at the time.

The CUCEI has been reported in papers by Fraser and Treagust (1986) and Fraser, Treagust and Dennis (1986) used by Fisher and Parkinson (1998) as an instrument in Australian hospital-based nursing education classrooms, and adapted to create new questionnaires such as the *Secondary Colleges Classroom Environment Inventory* (SCCEI) (Kent & Fisher, 1997; Rickards, 1998) for use in specific settings.

Nair and Fisher (1999) modified the CUCEI instrument by replacing the Involvement and Satisfaction scales with two new ones, Cooperation and Equity (Nair & Fisher, 2000). The Cooperation scale was included to measure the degree to which students cooperated rather than competed with one another on learning tasks. The Equity scale was incorporated to investigate students' perceptions of the environment with respect to gender. Other modifications included personalising the questionnaire, and changing the response from the original four-point rating scale to a five-point rating scale of Almost Never, Seldom, Sometimes, Often and Almost Always. Compared to the cyclical manner of items in the original CUCEI tool, this modified version placed all items relating to one scale into groups.

A study at a regional university in the Pacific Islands (Coll, Taylor & Fisher, 2002) using the CUCEI, along with the *Questionnaire on Teacher Interaction* (QTI), found that while the QTI exhibited good reliability for all scales, the CUCEI demonstrated only satisfactory reliability for only two scales. This study involved a sample of 257 first-year and second-year science students from 12 ethnicities. With the sample population having English as a second or third language, the outcome of this study may be attributed to the simple nature of the questions on the QTI, whereas the items of the CUCEI tool require more explanation.

When used in New Zealand computing classrooms, Logan, Crump and Rennie (2006) found that the CUCEI psychometric properties were not ideal. Using the CUCEI version modified by Nair and Fisher (1999), Logan, Crump and Rennie (2006) examined the statistical performance of the CUCEI in two separate studies. The first study investigated perceptions of first-year students of their learning environment based on subgroups of newly-arrived immigrant and international students. The second study involved year 12 and 13 students at seven Wellington secondary who were enrolled in optional computing classes. In both studies, some limitations of the CUCEI emerged. In

both studies limitations emerged around negatively worded items which needed to be omitted and where the Personalisation scale in the secondary study and Task orientation scale in the tertiary study needed to be removed to improve the CUCEI's factor structure.

Using the CUCEI developed by Nair and Fisher (1999) and the *Computer Classroom Environment Inventory* (CCEI) and the *Attitude towards Computers and Computer Courses* (ACCC) developed by Newby and Fisher (1997), Charik and Fisher (2008) evaluated tertiary Thailand computer classroom learning environments and students' attitude toward computer courses. With a sample of 905 computer science major students in 11 universities from 33 classes, results suggested that the modified Thai version of the CUCEI and other two instruments were valid and reliable for measuring students' perceptions of computer laboratory learning environments and attitudes in a Thailand University, and in particular, the CUCEI revealed that students had positive perceptions about their classroom learning environment (Charik & Fisher, 2008).

### ***Science Laboratory Environment Inventory (SLEI)***

With the individuality of the laboratory learning environment being recognised a *Science Laboratory Environment Inventory* (SLEI) was developed to assess this particular learning environment (Fraser, Giddings & McRobbie, 1992, 1995; Fraser, McRobbie & Giddings, 1993). The SLEI is used to assess the learning environments of secondary and high school laboratory environments. This tool has seven items per scale and uses a Likert type five point response system including almost, never, seldom, sometimes, often and very often. The SLEI is used in the laboratory learning environment because of its difference in environment to traditional classroom environments, requiring an open ended scale which is required to support the nature of activities conducted in the laboratories.

The SLEI conforms to the three dimensions defined by Moo's (Fraser, Giddings & McRobbie, 1992) and has been proven to be an effective learning environment instrument via validation in the USA, Australia, England, Singapore Israel, Nigeria and Canada (Fraser, 1998b).

Hofstein and Lunetta (1982) were able to validate the SLEI with a sample of 5,500

students, in 270 classrooms, across six countries simultaneously.

Henderson, Fisher and Fraser (1998) modified the SLEI to create the *Environmental Science Learning Environment Inventory* (ESLEI), and used this instrument to assess 100 high school students' perceptions of the environmental science classroom learning environment in Tasmania, Australia.

Pohl (1999) found a direct association between the quantitative results and qualitative information to the learning dimension scales of the SLEI. This association was drawn during a study of 580 students from Australian schools involved, or not involved, in a field-based water quality monitoring program.

Another study using the SLEI (Swain, Monk & Johnson, 1999) found that Korean science teachers understood student motivation to laboratory tasks in which the student had already learnt the theory. This study also found that student perceptions of the learning environment from the science-independent stream were positive, and also found that Korean science students had a positive attitude to science.

439 Korean high school students from humanities, science-orientated and science-independent streams formed the sample population for a study by Lee, Fraser and Fisher (2003) using the SLEI tool. This study found that students within the science-independent stream perceived their classroom environment more favourably than the other two streams.

### ***Constructivist Learning Environment Survey (CLES)***

The initial development of the *Constructivist Learning Environment Survey* (CLES) by Taylor, Fraser and Fisher (1997) was guided using four principles: Consistency with current literature, Personalised response format, Economical use, and Relevance to students, teachers and researchers alike.

The original tool sought to measure student's perceptions of constructivist approaches within classrooms (Aldridge, Fraser, Taylor, & Chen, 2000). Starting with a 58 item (four scale) instrument, the tool was soon reduced to a 30 item (five scale) instrument with only 6 reversed items (Taylor, 1996). Taylor, Fraser and

White (1994) later grouped like items within each scale of the instrument, which was against the norm of a cyclical arrangement of items.

The CLES instrument was developed to assist teachers and researchers to assess the degree to which a particular classrooms environment is consistent with the constructivist epistemology, allowing teachers the opportunity to reflect on their epistemological assumptions and reshape their teaching practice (Taylor, Fraser & Fisher, 1997).

A revised form of the CLES (Johnson & McClure, 2004) used the original five scales but reduced the tool down from 30 to 20 items using four items per scale rather than six, whilst also eliminating the negatively worded items.

### ***Questionnaire on Teacher Interaction (QTI)***

The *Questionnaire on Teacher Interaction* (QTI) is the research tool modified and used within this study in the form of the *International Questionnaire on Teacher Interaction* (IQTI). Originally developed in the Netherlands in Dutch (Wubbels, Brekelmans, & Hooymayers, 1992; Wubbels & Levy, 1993), the QTI utilised eight behavioural scales of Leadership, Helping/Friendly, Understanding, Student Responsibility/Freedom, Uncertain, Dissatisfied, 'Intolerance' (renamed in this study as Admonishing) and Strict.

Wubbels and Levy (1991) translated the QTI into English for an American study, which by 2002 had been further modified and used in over 120 studies in many countries (den Brok, Brekelmans, Levy & Wubbels, 2002) and has been translated into more than 15 languages (Wubbels, Brekelmans, van Tartwijk & Admiraal, 1997).

Since 2002 the QTI has been used in learning environment research in Brunei (Scott & Fisher, 2003), Singapore (Khine & Lourdusamy, 2005), the USA (Levy, den Brok, Wubbels & Brekelmans, 2003), India (Koul, 2003) and Turkey (Telli, Cakiroglu & den Brok, 2006). The QTI has also been used to investigate teacher-student interpersonal behaviour in classrooms consisting of students with English as a Foreign Language (EFL) (den Brok, Brekelmans & Wubbels, 2004), and by Wei,

den Brok & Zhou (2009) on EFL students in China.

The QTI tool is the instrument used within this study and it is briefly discussed here in the context of other learning environment tools. The QTI is investigated in-depth later within this chapter of the thesis.

### ***What Is Happening In this Classroom (WIHIC)***

Fraser, Fisher and McRobbie (1996) created the original nine scales and ninety item version of the *What is happening in this classroom* (WIHIC) questionnaire, and refined this to a more simplified seven scales and 56 items. The WIHIC is able to assess both the environment from the perspective of the class and from the individual. Using a 'Class form' the student's perception of the class as a whole are analysed, and using a 'Personal form' the personal perceptions of their role in the classroom are assessed.

Aldridge Fraser and Huang (1999) utilised the WIHIC in a study across Australia and Taiwan at junior high school level, and made a concluding comment that caution should be exercised when interpreting data from questionnaires where there are cultural differences.

The WIHIC was successfully used with 2,310 high school students in Singapore (Chionh & Fraser, 1998) and with elementary schools in the USA to provide insight into the effects of a teacher induction mentoring program (Pickett & Fraser, 2002).

### ***Learning environment instrument history***

The following section of this chapter briefly looks at some of these learning environment instruments in practice across a range of classrooms environments, and succinctly looks at the researcher, the topic and the outcomes of these researches.

A study was conducted (Fraser & McRobbie, 1995, and McRobbie & Fraser, 1993) using the SLEI on a sample of 80 students in a Chemistry high school class. The objective of the study was to assess the associations between student outcomes and environment (association with student's cognitive and affective outcomes). This analysis was replicated on multiple occasions across science learning environments

in Australia and Singapore.

Fraser (1979) discovered that learning environment instruments can be utilised towards the evaluation of educational innovations. Fraser compared a class of *Australian Science Education Project (ASEP)* with a control group, and found that the ASEP students perceived a more satisfying classroom environment, which was more individualised and had a better material environment (Fraser, 1998b).

A study by Maor and Fraser (1996) investigated students' perceptions of both inquiry and computer-based instructions. The Australian study, using a sample of 120 Grade 11 students in seven classes in four schools and 6 teachers, used the CCEI questionnaire which has five scales (Satisfaction, Investigation, Open Endedness, Material Environment, and Organisation) and 30 Items. A five-point Likert-type scale was used with nearly half of the items having their score reversed. The study required student to interact with a computerised database called 'Birds of Antarctica', and curriculum materials while the teacher used an inquiry approach to learning. The study found that students perceived their classes as more investigative and open ended, as well as revealing that student perceptions of an inquiry orientated classroom increased with the use of innovation when the students experienced a classroom using a computerised database.

Fraser (2002) found that an effective classroom environment has many determinants. These determinants may include teacher personality, class size, subject matter, grade level, type of school and nature of the school-level environment. A number of research experiments (Hirato & Sako, 1998; Khine & Fisher 2003; Khine & Lourdusamy, 2005; Kim, Fisher & Fraser, 1999; Lee, Fraser & Fisher, 2003), provide evidence which suggests that difference in learners perceptions of their classroom exist; with the most common determinant discovery in Asian classroom studies being student gender. In Asian classrooms, female student's perception of the classroom environment was more favourable than that of the males.

In 1983 Fisher and Fraser investigated the differences between student and teacher perspectives of an actual and preferred learning environment. The research revealed that students preferred a more positive classroom environment than was actually

present within the learning environment, while teachers perceived a more positive classroom environment than their students in the same classroom. The notion that students prefer a more positive classroom than they currently perceived has been replicated by Chionh and Fraser (1998) and Wong and Fraser (1996) using the WIHIC and QTI instruments respectively.

Using the ICEQ, Fraser and Fisher in 1983 undertook a study to question whether students achieve better in their preferred environment. The analysis suggested that the achievement of a class may be improved by enhancing the actual classroom environment in ways which make that environment more consistent with that preferred by the class.

Ferguson and Fraser (1998) completed a study relating to learning environments during transition. Changes in the classroom environment were recorded as students transitioned from primary to high school, and these changes were related to student sex and school size. Student attending high school on the same site as their primary school experienced the most favourable changes in their perceptions of learning environment, whilst students moving from smaller primary schools experienced the largest deterioration in perception of the learning environment.

Student perceptions of the learning environment in internet classrooms were assessed by Zandvliet and Fraser (1999). The study was able to establish links between psychosocial factors and student attitude, and between psychosocial factors and the ergonomic environment.

A number of studies (Anstine-Templeton & Jensen, 1993; Ciupryk, Fraser, Malone & Tobin, 1989; Fraser & Tobin, 1989; Hofstein, Ben-Zvi & Carmeli, 1990; Treagust, 1991) have indicated that exemplary teachers in high school science and mathematics can exhibit behaviours that positively affect the learning environments. This supports the notion that teacher effectiveness is an aspect of a quality learning environment (Fraser, 1986; Fraser, Walberg, Welch & Hattie, 1987). Fraser and Tobin (1989) further observed that exemplary teachers create a more favourable classroom environment when using the MCI and CES as instruments of measurement of the classroom environment.

The CES was one of the earliest research tools which was used to establish the validity of classroom environments in a non-Western country; namely India (Walberg, Singh & Rasher, 1977). The study involved the translation and validation of the tool from English into Hindi, in which the medium of instruction was English, therefore allowing the application of the instrument in English.

The CES has also been translated and validated into Korean by Kim, Fisher and Fraser (1999), Indonesian by Schibeci, Rideng and Fraser (1987), in which outcomes of these studies reported associations between student outcomes and classroom environment perceptions. These outcomes demonstrate a correlation with similar studies in Western countries.

From these early non-Western classroom environment studies a multitude of further research emerged around the world.

Using the SLEI, an international large scale study was conducted within laboratory classroom environments across developed and developing countries of Australia, Brunei, Cook Islands, Fiji, Singapore, Solomon Islands, Tonga, Tuvalu, USA, Vanuatu and Western Samoa (Hofstein & Lunetta, 1982). An outcome of the study was that students of both developed and developing countries held similar views regarding their learning environment. The existing cross-cultural base of students resulted in most science teachers implementing similar teaching practices.

Ratnaïke (1985) used the learning environment dimensions as criteria for teacher training in Thailand, whilst Hofsten, Ben-Zvi and Carmeli (1990) determined tangible traits of exemplary teachers in Israel which created positive learning environments.

In Russia, Suddaby (1989) assessed success of ideas and teaching methods focussing on cooperative relationships and measured aspects of learning environments.

In Hong Kong, Wong (1993; 1996) used open-ended questions to assess student perceptions of learning environments in ninth grade mathematics classrooms. In this study, students identified the teacher as the most crucial element to create a positive

classroom environment. According to the studies outcomes, students indicated that positive learning environments were generated by teachers who demonstrated friendliness and concern for student, whilst also remaining discipline.

Psychosocial environments of agricultural science classrooms were examined by Idris and Fraser (1997) in Nigeria. As a result, this study supported earlier research that indicated a favourable learning environment improved student outcomes.

In Jamaica, the SLEI was utilised in a study by Soyibo and Figueroa (1998) to evaluate the Reform of Secondary Schools Project. This study concluded that differences did not exist between two groups of schools; namely those that were involved with the project, and those schools that were not involved.

Singapore has been a source of abundant research into classroom learning environments. Studies by Khoo and Fraser (1997, 2008) have used computing subjects, geography subjects have been examined by Teh and Fraser (1995), mathematics by Chionh and Fraser (1998), Goh and Fraser (1996) and Goh, Young and Fraser (1995), whilst Wong and Fraser (1995, 1996) have used chemistry subjects. These studies have similarly reported that strong associations exist between learning environments and student outcomes.

Perceptions of Korean high school students in science classrooms were the target audience of a study by Fraser and Lee in 2009. With a focus on constructivism, the CLES was the selected questionnaire wherein strong associations between classroom environment and student attitude were reported.

### ***Variations in instrument methodology***

There have been typically four types of questionnaire formats or forms based on whether the research wishes to seek the perceptions of the learning environment based upon the teacher and/or student, and whether the perceptions are based on the actual and/or preferred learning environment.

The ‘actual’ form of a learning instrument prompts the respondent to reflect on a real classroom situation and rate their perception of these interactions. The ‘preferred’

form of a learning instrument requires respondents to reflect on an ideal classroom situation and rate their perceptions of the same interactions.

Both forms of the instrument are almost identically worded with only a small grammatical difference (typically based on tense) to elicit a response based on the actual or preferred learning environment. “This teacher is patient” and “This teacher would be patient” are examples of actual and preferred items from the student instrument respectively.

Actual and preferred versions of the instrument can also allow for investigation into the perceptions of the teacher. Using the same item the teacher actual version would be “I am patient”, while the teacher preferred version would be “I would be patient”.

The differences between the actual and preferred environment provides a point of reflection to improve teaching practice by identifying perceptual differences in the classroom learning environment.

Modern studies into learning environment research have sought to develop efficient and economical forms of instruments. Typically this has been identified as the selection of long or short formats or forms of a questionnaire.

In response to teacher requests for more efficient learning environment tools in which administration and scoring time were reduced, a series of condensed versions of standard questionnaires were developed into ‘short form’; namely that of the CES, ICEQ and MCI (Fraser, 1994, 1998a, Fraser & Fisher, 1983). Objectives of the short form were to reduce the number of items per questionnaire (typically to around twenty five items), with the ability to allow easy scoring and adequate reliability in line with previous learning environment tools in respect of assessing perceptions involving averaging of scores.

The WIHIC (Fraser, Fisher & McRobbie, 1996) and the QTI (Fisher, Fraser & Wubbels, 1993; Wubbels & Levy, 1991) have also had short forms developed with the WIHIC already being discussed in this chapter, and the QTI which will be discussed later in this chapter at is the questionnaire involved in this study.

This study seeks to identify the perceptions of students within Australian based international pathway learning environments, and will therefore use the student actual version of the selected instrument. The study wishes to create minimal impact on students and use efficient mechanisms for the data collection and analysis, therefore the short form of the selected instrument, the Australian version of the short form of the QTI, has been identified due to the efficient and economical nature. Before this study explores the development and application of the QTI tool, it is important to briefly reflect upon some of the themes explored by learning environment tools in a rapidly evolving internationalised education environment which commenced around the 1990's.

### ***Cross-national studies of learning environments***

Science and mathematics education research has expanded and become internationalised in the 1990's, with a particular focus from 1990 – 1995 (Riah, Fraser & Rickards, 1997).

Fraser (2002) also continues to highlight that learning environment research internationally may be partly due to the international audience. A focus on cross national studies in recent years (Aldridge, Fraser & Huang, 1999; Fisher, Goh, Wong and Rickards, 1996; Fisher, Rickards, Goh & Wong, 1997; Riah, Fraser & Rickards, 1997) further support the international approach to learning environment research and findings in the area.

The validation of an English version of the QTI in a study by Wubbels and Levy (1991) formed one of the earliest studies of teacher-student interpersonal behaviour research from a cross-national perspective. The study carried out in the Netherlands and USA allowed the researchers to investigate if the English and Dutch versions of the QTI were equivalent, and allowed for an assessment of differences in teacher-student interpersonal behaviour between the two countries. Discussions from the study suggest that Dutch teachers saw student responsibility and freedom as being more important whilst American teachers saw strictness as a more important behavioural characteristic.

Cross national studies are important to assessing classroom environments as they allow for a greater variation in variables of interest in which those educational practices, beliefs and attitudes that are taken for granted in one country, can be made strange and questioned when researching more than one country (Fraser, 2002).

Studies have centred on the comparison of student perceptions and satisfaction in classroom environments in different countries. Aldridge et al. (1999, 2000) conducted research between Australian and Taiwanese classrooms, in which questionnaires were written in English and Chinese. Qualitative and quantitative information was collected, and interviews used to clarify whether items had been interpreted consistently by students. An outcome from this research indicated a need to remain cautious when interpreting associations between questionnaires results when cultural differences from two countries were involved (Aldridge et al 1999, 2000).

In 1997 (Fisher et al., 1997) research was conducted using the QTI on a sample of 20 classes from ten schools in each of Singapore and Australia. Their research evaluated that Singapore teachers were more strict than Australians, and Australian teachers were more flexible giving students freedom and responsibility.

### ***Gender differences in learning environment research***

Many studies in learning environment research have involved the differentiation of student perception of learning environments based upon gender (Friedler & Tamir, 1990; Husén, Fagerlind & Liljefors, 1974; Jegede & Okebukola, 1992; Lawrenz, 1987; Parker, Rennie & Fraser, 1996), with early work coming from Moos (1979).

Moos early work (1979) found that significant differences were present between boys and girls at a single sex school. Lawrenz (1987) found that differences in perceptions of the classroom psychological environment became more obvious as student age increase.

Owens and Stratton (1980) found that girls preferred more competition than boys, while a study by Byrne, Hattie and Fraser (1986) found that boys preferred more friction, competitiveness and differentiation, with girls preferring more teacher

structure, personalisation and participation.

Goh and Fraser (1998) conducted a study in Singapore with 1512 students using the QTI and MCI to detect gender differences in mathematics achievement. The study found that girls generally viewed the classroom environment more favourably than their male counterparts.

A study by Rickards (2003) found that differences exist between female and male student perceptions of teacher interpersonal behaviour. This study found it was typically females who perceived their teachers more positively than males, with males perceiving their teachers as more uncertain, dissatisfied, admonishing and strict.

A study into teacher-student interactions and perceptions of the laboratory learning environment was conducted by Quek, Wong and Fraser (2005a, 2005b) using 497 gifted and non-gifted secondary-school students in Singapore. The study found that gender differences were evident in actual and preferred chemistry laboratory classroom environments and teacher-student interactions.

Using the WIHIC a study was conducted by den Brok, Fisher, Rickards and Bull (2006) to examine factors that influence Californian students' perceptions of their learning environment. With a sample of 665 middle-school science students in 11 Californian schools the study found that student gender affected students' perceptions, and that girls perceived the learning environment more positively than boys.

Peer (2011) undertook a study utilising the CLES, WIHIC and *Test On Science Related Attitude* (TOSRA) to investigate gender, grade level and stream differences in learning environments of primary classrooms in Singapore. This study found that gender made a significant difference to student perceptions within the primary school environment in Singapore.

### ***Culturally sensitive learning environment instruments***

Two instruments, namely the *Cultural Learning Environment Questionnaire* (CLEQ) and *Socio-Cultural Environment Scale* (SCES) have been designed to assess cultural aspects of the classroom learning environment.

The CLEQ uses five items per scale, on eight scales, with a total of 40 items. The eight scales were Equity, Collaboration, Deference, Competition, Teacher Authority, Modelling, and Congruence (Fisher & Waldrup, 1997).

According to Fisher and Waldrup (1997) the CLEQ instrument was designed to be consistent with important learning style dimensions including Moo's general dimensions (1979). The tool provided consistency with previous learning environment research. The tool was also designed with Hofstede's (1984) cultural dimensions in mind.

Koul and Fisher (2008) conducted a study which examined student's perception of their learning environment and associations with their cultural background and attitude to class. The study used a sample of 560 students from years 7 and 8 multicultural Western Australian public schools, using the *Cultural Learning Environment Questionnaire* (CLEQ) and an Attitude scale. The study allowed for further validation data for the CLEQ. The study concluded that changing trends in Western Australian schools was occurring in regard to cultural sensitivity in which students generally have very positive perception of cultural aspects of their learning environment. Gender differences in student's perception of cultural background were also evident.

To assess student perceptions socio-cultural environment of science non-western classrooms, Jegede and Okebukola (1988) developed the *Socio-Cultural Environment Scale* (SCES). The SCES is a five scaled instrument, with six items per scale with a total of 30 items, and responses scored using a three point Likert based response scale.

Jegede and Okebukola (1992) have subsequently developed the SCES in African studies in consultation with science teachers, anthropologists and sociologists and highlighted that the items on the instrument should be clustered into social and

cultural entities (Okebukola and Jegede, 1990). It was expected that additional research would be undertaken to further validate the SCES tool as it was suggested that science teachers need to become aware of socio-cultural issues so as to develop intervention strategies to reduce anxiety of student (Jegede and Okebukola, 1993).

### ***Geography Classroom Environment Inventory (GCEI)***

Designed to assess innovation and gender equality in computer assisted learning environments in Singapore, Teh and Fraser (1994, 1995) developed The *Geography Classroom Environment Inventory* (GCEI). The GCEI used four scales (originally eight), with eight items per scale, and used a five point Likert-type scale in which nearly half its items were reversed. Three of the four scales were adapted from existing computer assisted classroom learning environments with a new scale of gender equity included.

Reliability with previous research in computer assisted learning, Moos (1979) dimensions on Human Environments, salience to classroom researchers, teachers and students and computer education experts guided the development of the GCEI by Teh and Fraser (1994 , 1995).

Teh (1999) applied the GCEI tool to undergraduate level distance education classes in Singapore and found a significance association between learning environment and geography given the unique combination of students in Singapore and other geographical regions.

### ***Technology rich learning environment research***

With the rapid advances in technology such as the development of internet, an increasing number of learning environment instruments have been developed to support teaching and learning environments inculcating technology.

The first version of the *Computer Classroom Environment Inventory* (CCEI) was composed of 40 items which was revised to a more economical 30 items within five scales. The CCEI (Maor & Fraser, 1993, 1996) was developed to assess student perceptions of learning environments based on both computer assisted instruction and inquiry learning methods. Using Moo's dimensions and a Likert-type five point

scale of response the CCEI provided an efficient tool and salience to teachers and students within the studies population. Fraser (1997) made use of the CCEI to investigate students' inquiry skills during a computerised database program.

Studies (Chandra & Fisher, 2006; Chang & Fisher, 2003; Clayton, 2004; Goh & Tobin, 1999; Harwell et al., 2001; Khine & Fisher, 2003; Margianti, 2001; Newby & Fisher, 2000; Newby & Marcoulides, 2008; Newhouse, 2001; Rickards, 2003, She & Fisher, 2003; Trinidad et al. 2005; Trinidad & Pearson, 2004; Zandvliet, 2003) into the impact of technology based education in the area of internet, computer laboratories, web based e-learning, e-learning and computer classrooms and the physical learning environment have been prominent in recent research.

Goh and Tobin (1999) investigated the use of internet application called *Connecting Communities of Learners* (CCL) in prospective teacher courses, and the associated student and teacher perceptions of the learning environments which used the CCL program. An outcome of the study was that the CCL software allowed students and teachers to connect better and work closer with one another. Even though the CCL could not meet the needs of all learners, the software did make available a better quality student interaction, collaboration, reflection and feedback which integrated convenience, efficiency and autonomy of learning.

Using the CLES Harwell et al. (2001) concluded that teachers became more knowledgeable of the constructivist viewpoint of teaching and learning whilst becoming more competent and confident in the use of technology, when they undertook a study between regional universities and a local school (grade 6) in which they monitored alignment of classroom activities from a constructivist viewpoint while integrating technology into the curriculum. Teachers were also found to become more committed to modifying their instructional practices.

The *New Classroom Environment Instrument* (NCEI) was developed by Newhouse (2001) to promote the use of portable computers in a school, with a particular focus on the impact that computers have on the classroom learning environment. The study found that learning environments involving computers were more innovative in which involvement by students was high. The use of computers was also observed to

be consistently used to support a student-centred approach involving group work and a good person-environment fit.

Research into perceptions of students in a web based learning environment was completed by Chang and Fisher (2003). This research showed that teachers were able to have their content delivered via a web based learning application in line with four aspects of Access (online material), Interaction (involvement in online learning), Response (perceptions of students to the online learning environment) and Results (learning outcomes and achievement), for which students responded positively.

Khine (2003) conducted a study focussed on CD-ROM based comprehension resources to facilitate learning the concepts and skills with classroom management. The CD-ROM provided content loaded with web enabled format interfaced with video clips and multimedia materials relevant to classroom management issues. Students were given the opportunity to have online discussions to exchange their experiences, thinking and reflections whilst being provided opportunity to interact with peers and tutors face-to-face.

In Indonesia Margianti (2001) completed a study to investigate the relationship between attitude and achievement of university students in computer classrooms. The study found that females were more favourable in terms of student cohesiveness, teacher support, task orientation and cooperation in computer classrooms than their male counterparts.

In Hong Kong (Trinidad, 2003) a study was conducted by building Technology rich learning environments using the *Mediated Learner Approach* (MLA) in the form of an e-learning module. Teachers and students were given the opportunity to interact and manage work and the learning experience with peer support via a social-constructivist approach. Students were observed as developing a sense of empowerment when engaged in the technology-rich learning environment using e-learning, and no longer were limited by or dependent upon the educator.

A study by Rickards (2003) in Australia found that effective use of technology-rich learning environments in combination with effective teaching provides an

environment for the development of creative, capable and empowered problem solvers and enables teachers to be effective role models for the young. The study came to these conclusions by examining how today technology-rich classroom learning environments can prepare students to make an effective contribution to their technology-based future. The study was achieved by focusing on the role of computers and other computing devices, issues related to the use of various current technologies in today's classrooms, new hardware and software technology availabilities and the methods of teaching and role of the teacher in using technology in the classroom. Other roles such as professional development of teachers in using technology and integration into the teaching and learning environment, and the financial considerations of adopting technology was also a focus.

The *Online Learning Environment Survey* (OLLES) was used in a study in New Zealand by Clayton (2003) to examine the perceptions of students and teachers of online learning environments. Observations were that reductions in the costs of technology, improvements in technology and a demand for more flexibility in education is making online learning increasingly attractive, viable, cost effective and valued.

Newby and Fisher (2003) completed a study on the differences between students' perceptions of learning environments of computer laboratories using the *Computer Laboratory Environment Inventory* (CLEI) to measure aspects of a computer laboratory environment and the *Attitude to Computers and Computing Courses* (ACCC) questionnaire to measure students' attitude (Newby & Fisher, 1997). The study focussed upon the use of ICT in university level education where students are typically required to master computer skills before mastering the subject being taught. A key finding from the research was that significant differences in the environmental and attitudinal variables of students existed in the computer laboratory environment.

Incorporating the *Web-based Computer Assisted Learning* (WBCAL) questionnaire, the *Satisfaction of Web-Based Learning* (SWBL) and the WIHIC, She and Fisher (2003) conducted a study on the perceptions of students of their online e-learning environment. The study group used was a science learning environment which was

taught using a web-based, multimedia, science learning program delivered via an online e-learning environment. Student cognitive and affective learning outcomes given different learning styles and different grade level were also considered. Student attitude towards computer and web usage was found to be positive, and students within these learning environments perceived high levels of student cohesiveness, task orientation, cooperation, equity and differentiation.

A Singaporean lower secondary science classroom using an e-learning environment was the focus of a study by Lang and Wong (2003), in which the *E-learning Classroom Environment Questionnaire* (ELCEQ) was used to assess the learning environment by understanding the perceptions of the students within the classroom. With e-learning being used to compliment traditional instruction, and now becoming a reality of modern day science classrooms the study proved poignant to evaluate e-learning as a viable approach to teaching and learning. It was summarised that students perceptions of the science classroom incorporating e-learning and face-to-face interaction to be positive.

#### ***Distance learning environment instruments***

The *Distance and Open Learning Environment Survey* (DOLES), *Web-Based Learning Environment Instrument* (WEBLI) and *Distance Education Learning Environments Survey* (DELES) provide a range of tools for post-secondary (university) distance education sector.

The DOLES (Jegede, Fraser, & Fisher, 1995) focuses on science education courses within the Australia and Asian regions, while the WEBLI concentrates more on information structure, and design activities (Chang & Fisher 2003), and the DELES developed by Walker and Fraser (2005) is emphasized towards learning environment research consistent with the characteristics of distance education.

The DOLES was used to assess perceptions of student undertaking studies via distance education, and in particular at university level science (Jegede et al., 1995). Using a five point Likert type scale and development from an original instrument with 60 items, the final version consisted of 52 items with varying number of items within five core and two optional scales.

The DOLES instrument was developed on five theoretical principles of consistency based on learning environment literature, previous face-to-face learning environment instruments, distance and open learning characteristics, an economic mode of administration and scoring and salience to students and teachers in the target audience of open and distance learning (Jegede et al., 1995).

The DOLES was also used in a primary distance education science classes in Queensland and Western Australian Universities which considered participants perspectives of subjects delivered on the World Wide Web (Jegede, Fraser & Fisher, 1998).

A study by Chandra and Fisher (2006) using the *Web-Based Learning Environment Instrument* (WEBLI) found that 3D Virtual learning Environments have a potential to provide a rich learning experience for participants. The virtual environment was also found to be more favourable than typical online environments.

Walker and Fraser (2005) undertook a study to develop and validate a new learning environment, namely the *Distance Education Learning Environments Survey* (DELES) instrument. The DELES instrument was designed to aid investigators and practitioners in measuring and researching the psychosocial learning environment in post-secondary distance education. The instrument has 34 items allocated to six scales: Instructor Support; Student Interaction and Collaboration; Personal Relevance; Authentic Learning; Active Learning; and Student Autonomy. A scale of Enjoyment was also included to explore associations between the psychosocial learning environment and student affective traits. The DELES instrument was found to be a tool sufficient to be utilized by students at any location eliminating many errors relating to data transfer and non-responses.

### ***Combination of Qualitative and Quantitative analysis***

So far this these has provided reference to a number of studies involving qualitative and quantitative data collection and analysis relevant to learning environment research and this study. As quantitative and qualitative data collection is part of this study's methodology, it seems fitting to briefly explore other learning environment research which has used this dual data collection method.

A study of exemplary and non-exemplary teachers by Fraser and Tobin (1989) combined qualitative and quantitative research methods in which qualitative data was collected via observations and interviews with students and teachers, whilst quantitative data was collected through a questionnaire. Fraser and Tobin (1989) concluded that a distinction could be made between exemplary and non-exemplary teachers based upon students' perceptions of the learning environment they created, and that, exemplary teachers created a favourable learning environment than that created by their non-exemplary counterparts.

In 1990, Fraser, Tobin and Kahle (1992) completed a study in which they gathered qualitative data via classroom observations and in the form of daily interviews with two teachers and their students and quantitative data via questionnaires from two grade 10 classes of students for a period of 13 weeks. Patterns of consistency were reported within the learning environment between learning activities and engagement in class with researcher's observations.

Anstine-Templeton and Jensen in 1993 examined the perceptions of exemplary teachers of their school environment by combining qualitative and quantitative methods. The study proposed that teachers enabled positive school environments by empowering students to learn and this suggested that exemplary teachers influenced their school environment in a positive way.

Tobin and McRobbie (1996a, 1996b) conducted a study in which their learning environment was informed by their research, learning from their reading and learning from their field. The study involved the investigation of performance of Chinese-Australian student in chemistry classes. Use of teacher responses and student responses to the questionnaire and researcher observations provided a guide towards further interviews providing a general understanding of their designated classroom environment.

In a case study to describe and evaluate learning environments created by exemplary teachers, Anstine-Templeton and Nyberg (1997) proposed that a teacher's role be redefined as that of an educational leader and informed decision maker, contributing

towards a sense of value and reward by the teachers for contributing beyond the classroom.

Qualitative and quantitative research methods were also combined by Aldridge, Fraser and Huang (1999) in which when combined compliment and triangulate the findings. The cross national study between Taiwan and Australia explored the natural classroom environments with a focus on investigating differences in learning environments of each country. A prominent outcome by the researches was that the multiple research methods provided a better understanding of the learning environments. Aldridge, Fraser and Huang (1999) concluded that each country, Taiwan and Australia, had much to learn in regards to the development of the learning environment which promotes positive attitudes and love for learning.

Fraser (1999) discussed the different levels of intensity and extent, and devised a notion of 'grain size' whilst studying science classes taught by the same teacher. Fraser (1999) utilised quantitative research methods by employing the use of a modified version of the CLES and qualitative methods from a variety of sources including videotapes, diaries and interviews of activities. The CLES was administered via three groupings; the first grouping being a selection of the group being studied, the second group was that of students from classrooms with other teachers within the same school, and the third grouping was that of a larger representative group. Comparisons were drawn to define the extent to which a teacher expressed idiosyncratic traits of their school and state. Patterns discovered in the study indicate that differences exist between perceptions of students in science classes observed compared to the larger representative group.

A study by Khalid (2003) in Brunei Darussalam, utilised qualitative and quantitative research methods to assess the perceptions of mathematics classroom environments of technical students. Students were found to have preferred enhanced learning environments even though there were favourable perceptions of students' of the actual learning environment.

Studies using both qualitative and quantitative research methods with the QTI are discussed in-depth later in this chapter. This study will follow conventional learning environment research and utilise both qualitative and quantitative research methods, and this approach is discussed in chapter three.

***Learning instrument summary***

The classroom environment instruments discussed in the previous sections included the *Learning Environment Inventory (LEI)*, *Classroom environment Scale (CES)*, *Individual classroom environment questionnaire (ICEQ)*, *My Class inventory (MCI)*, *College and University Classroom Environment Inventory (CUCEI)*, *Science Laboratory Environment Inventory (SLEI)*, *Constructivist Learning Environment Survey (CLES)* and the *What is Happening In this Class (WIHIC)*.

Table 2.11 summarises the relationships and diversity in the associated learning environment instrument, and depicts that learning environment instruments have been well researched in which measures of reliability have been established. The data provides a framework and tangible numeric system to base future research.

*Table 2.11: Overview of scales contained in nine classroom environment instruments (LEI, CES, ICEQ, MCI, CUCEI, QTI, SLEI, CLES and WIHIC)*

Instrument	Level	Items per scale	Scales classified according to Moo's scheme		
			Relationship dimensions	Personal development dimensions	System maintenance and change dimensions
Learning Environment Inventory (LEI)	Secondary	7	Cohesiveness Friction Favouritism Cliquesness Satisfaction Apathy	Speed Difficulty Competitiveness	Diversity Formality Material environment Goal direction Disorganisation Democracy
Classroom Environment Scale (CES)	Secondary	10	Involvement Affiliation Teacher support	Task orientation Competitiveness	Order and organisation Rule clarity Teacher control Innovation
Individual Classroom Environment Questionnaire (ICEQ)	Secondary	10	Personalisation Participation	Independence Investigation	Differentiation
My Class Inventory (MCI)	Elementary	6-9	Cohesiveness Friction Satisfaction	Difficulty Competitiveness	

Table 2.11(cont.): Overview of scales contained in nine classroom environment instruments (LEI, CES, ICEQ, MCI, CUCEI, QTI, SLEI, CLES and WIHIC)

Instrument	Level	Items per scale	Scales classified according to Moo's scheme		
			Relationship dimensions	Personal development dimensions	System maintenance and change dimensions
College and University Classroom Environment Inventory (CUCEI)	Higher Education	7	Personalisation Involvement Student cohesiveness Satisfaction	Task orientation	Innovation Individualisation
Questionnaire on Teacher Interaction (QTI)	Secondary/Primary	8-10	Helpful/friendly Understanding Dissatisfied Admonishing		Leadership Student responsibility and freedom Uncertain Strict
Science Laboratory Environment Inventory (SLEI)	Upper Secondary/Higher Education	7	Student cohesiveness	Open-endedness Integration	Rule clarity Material environment
Constructivist Learning Environment Survey (CLES)	Secondary	7	Personal relevance Uncertainty	Critical voice Shared control	Student negotiation
What Is Happening In This Classroom (WIHIC)	Secondary	8	Student cohesiveness Teacher support Involvement	Investigation Task orientation Cooperation	Equity

Reprinted from "Science learning Environments: Assessment, effects and determinants" by Fraser, B. J., 1998, in Fraser, B. J., & Tobins, K. G. (Eds.), International handbook of science education, 527 - 564. The Netherlands: Kluwer Academic Publishers.

The validation of each instrument as depicted in Table 2.12 and which starts on the next page defines each scales internal reliability (denoted by its alpha coefficient), discriminant validity (denoted by using the mean correlation) and ability of each instrument to differentiate between perceptions of students in different classrooms (denoted by significance level and eta<sup>2</sup> statistic from ANOVA).

Table 2.12: Results for class membership differences for student actual form of nine instruments using individual as unit of analysis.

Scale	Alpha rel.	Mean Correl. with other scales	ANOVA results $\eta^2$	Scale	Alpha rel.	Mean Correl. with other scales	ANOVA results $\eta^2$
Learning Environment Inventory (LEI) (n=1,048 student classes)				College and University Classroom Environment Instrument (CUCEI) (n=372 students)			
Cohesiveness	0.69	0.14	----	Personalisation	0.75	0.46	0.35*
Diversity	0.54	0.16	----	Involvement	0.70	0.47	0.40*
Formality	0.76	0.18	----	Student Cohesiveness	0.90	0.45	0.47*
Speed	0.70	0.17	----	Satisfaction	0.88	0.45	0.32*
Material Environment	0.56	0.24	----	Task Orientation	0.75	0.38	0.43*
Friction	0.72	0.36	----	Innovation	0.81	0.46	0.41*
Goal Direction	0.85	0.37	----	Individualisation	0.78	0.34	0.46*
Favouritism	0.78	0.32	----	Questionnaire on Teacher Interaction (QTI) (n=3,994 students)			
Difficulty	0.64	0.16	----	Leadership	0.82	----	0.33*
Apathy	0.82	0.39	----	Helping/Friendly	0.88	----	0.35*
Democracy	0.67	0.34	----	Understanding	0.85	----	0.32*
Cliqueness	0.65	0.33	----	Student	0.66	----	0.26*
Satisfaction	0.79	0.39	----	Resp/Freedom	0.72	----	0.22*
Disorganisation	0.82	0.40	----	Uncertain	0.72	----	0.22*
Competitiveness	0.78	0.08	----	Dissatisfied	0.80	----	0.23*
Classroom Environment Scale (CES) (n=1,083 students)				Admonishing	0.76	----	0.31*
Involvement	0.70	0.40	0.29*	Strict	0.63	----	0.23*
Affiliation	0.60	0.24	0.21*	Science Laboratory Environment Inventory (SLEI) (n=3,727 students)			
Teacher Support	0.72	0.29	0.34*	Student Cohesiveness	0.77	0.34	0.21*
Task Orientation	0.58	0.23	0.25*	Open-Endedness	0.70	0.07	0.19*
Competition	0.51	0.09	0.18*	Integration	0.83	0.37	0.23*
Order and Organisation	0.75	0.29	0.43*	Rule Clarity	0.75	0.33	0.21*
Rule Clarity	0.63	0.29	0.21*	Material Environment	0.75	0.37	0.21*
Teacher Control	0.60	0.16	0.27*				
Innovation	0.52	0.19	0.26*				

Table 2.12(cont.): Results for class membership differences for student actual form of nine instruments using individual as unit of analysis.

Scale	Alph a rel.	Mean Correl. with other scales	ANOVA results eta <sup>2</sup>	Scale	Alpha rel.	Mean Correl. with other scales	ANOVA results eta <sup>2</sup>
Individualised Questionnaire (ICEQ)	Classroom (n=1,849 students)	Environment		Constructivist Learning Environment Survey (CLES) (n=1,081 students)			
Personalisation	0.79	0.28	0.31*	Personal Relevance	0.88	0.43	0.16*
Participation	0.70	0.27	0.21*	Uncertainty	0.76	0.44	0.14*
Independence	0.68	0.07	0.30*	Critical View	0.85	0.31	0.14*
Investigation	0.71	0.21	0.20*	Shared Control	0.91	0.41	0.17*
Differentiation	0.76	0.10	0.43*	Student Negotiation	0.89	0.40	0.14*
My Class Inventory (MCI)				What is Happening In This Classroom (WIHIC) (n=1,081 students)			
Cohesiveness				Student Cohesiveness	0.81	0.37	0.09*
Friction	0.67	0.20	0.21*	Teacher Support	0.88	0.43	0.15*
Difficulty	0.67	0.26	0.31*	Involvement	0.84	0.45	0.10*
Satisfaction	0.62	0.14	0.18*	Investigation	0.88	0.41	0.15*
Competitiveness	0.78	0.23	0.30*	Task Orientation	0.88	0.42	0.15*
	0.71	0.10	0.19*	Cooperation	0.89	0.45	0.12*
				Equity	0.93	0.46	0.13*

Reprinted from "Classroom environment instruments: Development, validity and applications", by Fraser, B. J., 1998, *Learning Environments Research: An International Journal*, 1, 7-33.

So far this chapter has examined the history and usage of learning environment instruments, focussing on instrument features, items and scales. Summary data for these instruments has also been provided. It is also important to note that other Learning Environment instruments have been designed to measure specific types of learning environment.

The teacher-student interpersonal behaviour instrument called the *Questionnaire on Teacher Interaction* (QTI) mentioned within this chapter will now become the focus of this literature review.

## 2.7 Interpersonal behaviour development

At Utrecht University, The Netherlands, in the late 1970's Wubbels, Créton and Hooymayers (1987) undertook a research project titled *Education for teachers* which initiated teacher-student interpersonal behaviour research. The product of their seminal work was a school induction programme for pre-service teachers based upon their research findings. Findings (Wubbels, Créton & Hooymayers, 1992) identified that those new teachers with discipline issues within the classroom were a result of interpersonal teacher behaviour, leading to the foundation of research into teacher-student interpersonal behaviour.

The interactional aspect of teacher behaviour from a systems perspective investigated by Wubbels, Créton and Holvast (1988) found that a change in one part of the system, would lead to a change in another part of the system, which would influence the first part of the system in a circulatory notion. This highlights the system perspective of communication where all participants mutually influence each other.

Créton, Wubbels and Hooymayers (1993) suggest that this circular communication consists of, and determines, the behaviour within the classroom. However, should the quality of that environment not meet basic conditions, the methodological aspect loses its significance (Wubbels & Levy, 1993).

Wubbels, Crèton and Hooymayers (1985) developed a model of interpersonal behaviour based on work completed by Leary (1957). The model developed gave rise to the *Questionnaire on Teacher Interaction* (QTI) instrument which gathers data based upon interpersonal teacher behaviour from the perspective of the student and/or teacher (Wubbels, Brekelmans, & Hooymayers, 1991; Wubbels & Levy, 1993).

### 2.7.1 The Leary Model

The original Leary model of interpersonal behaviour is based upon research from work completed on the Kaiser Foundation research project (Leary, 1957, p. 62) in which a 16-dimensional model with two levels of behaviour was recommended.



The Leary model utilising the terms ‘influence’ and ‘proximity’ have been generally accepted, with cross national validation by Lonner (1980) and Wubbels and Levy (1991) indicating the universal nature of the model.

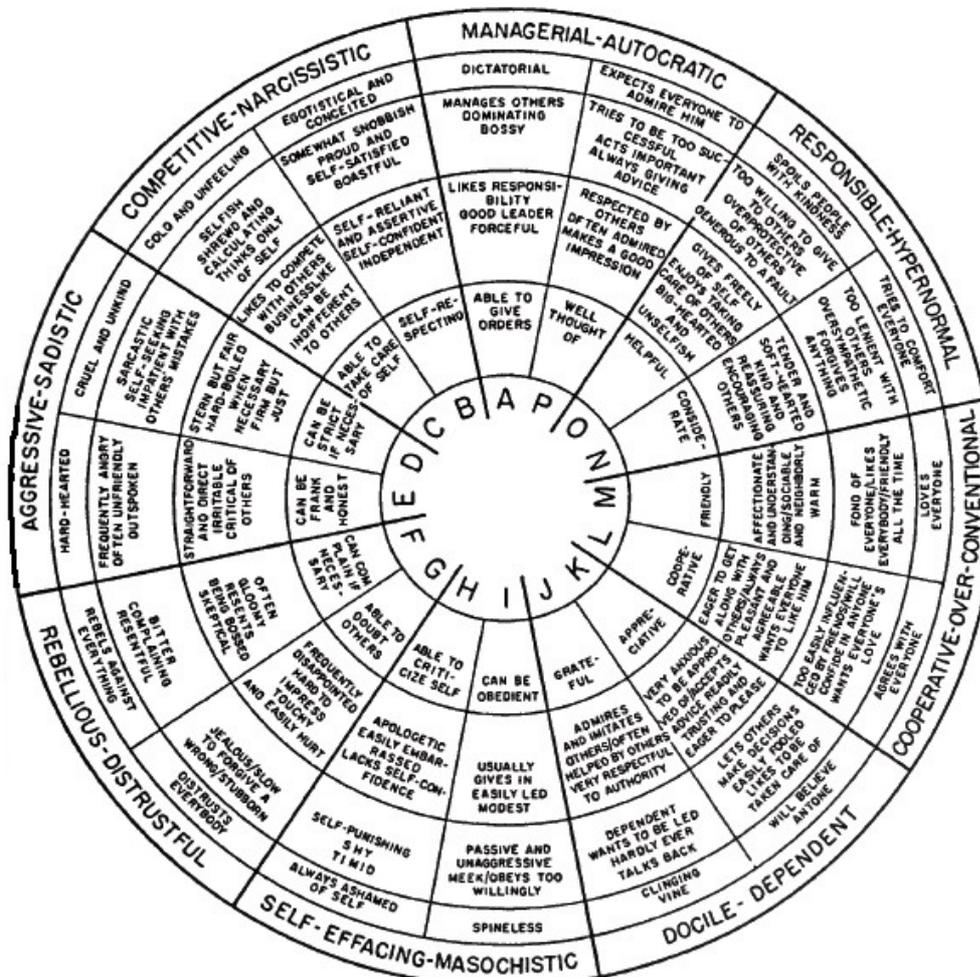
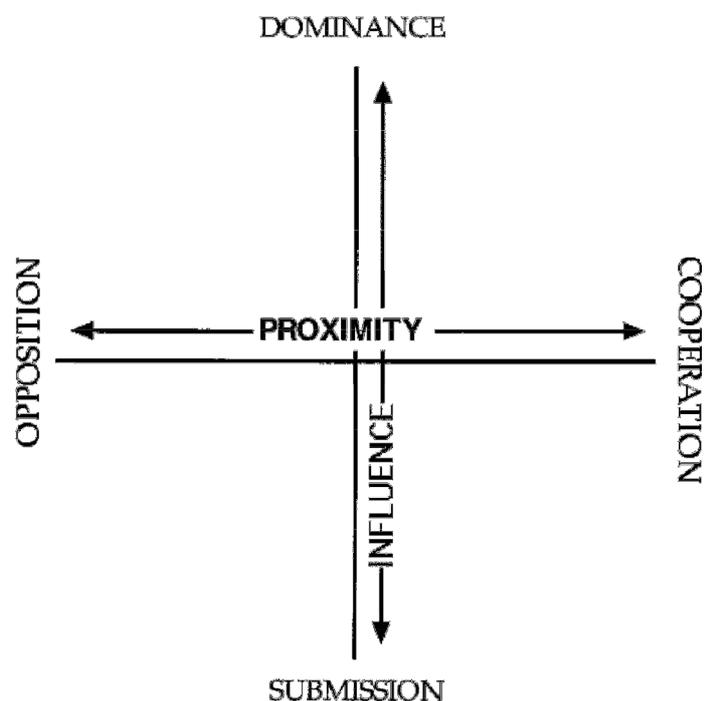


Figure 2.3: Level two classification of interpersonal behaviour into sixteen variable categories

Reprinted from “Interpersonal Diagnosis of Personality,” by Leary, 1957, p. 135 Ronald Press Company, New York, NY

This two dimensional system, as represented in Figure 2.4 on the next page, mapped interpersonal behaviour based upon the degree of influence (control) of the communicator over the communication process using the vertical axis, and the degree of cooperation of the individuals communicating on the horizontal axis.



*Figure 2.4: The two-dimensional coordinate system of the Leary model*

Reprinted from "The model for interpersonal behaviour," by Wubbels, Créton, Levy & Hooymayers, 1993, p. 15, In Wubbels, T. & Levy, J. (Eds.), *Do you know what you look like? Interpersonal relations in education*. London: The Falmer Press.

### 2.7.2 Development of similar models of human interaction

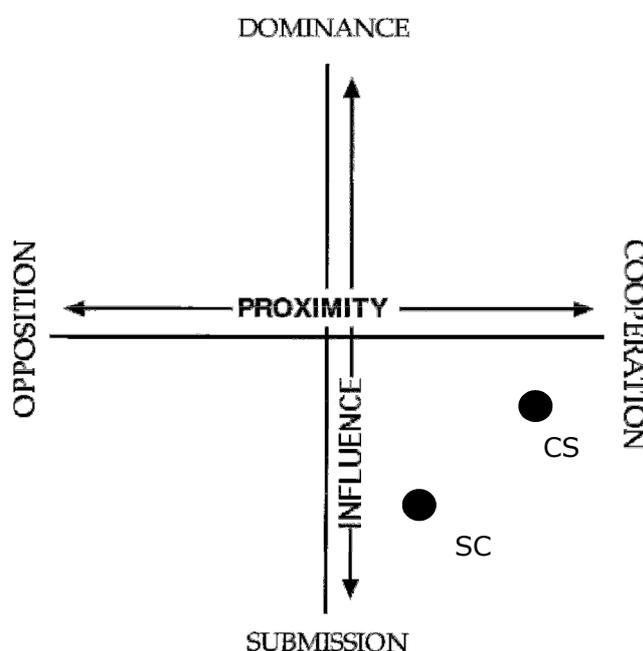
It should be noted that other research has been conducted using alternative titles for the types of human interaction measured by the Leary model.

Dunkin and Biddle (1974) adapted the titles of Warmth and Directivity, Brown (1965; 1985) commissioned the use of terms of Status and Solidarity, and Foa (1961) and Gough (1957) the titles of Dominance and Affiliation as opposed to the generally accepted terms of Influence and Proximity (Wubbels, Créton, Levy & Hooymayers, 1993).

Based on a foundation of the Leary model, further understanding, development and refinement of interpersonal teacher behaviour began to evolve.

## 2.8 Development of the model for interpersonal teacher behaviour

Perspectives of interpersonal teacher behaviour is based upon principles of a systems based approach to communication (Watzlawick, Beavin & Jackson, 1967) in which students both influence, and are influenced, by the communication process. The Leary model was adapted for use in classrooms, in which the original model for interpersonal behaviour is mapped with the Proximity dimension (Cooperation - C and Opposition - O), and the Influence dimension (Dominance - D and Submission - S).



*Figure 2.5: The two-dimensional coordinate system of the Leary model*

Reprinted from “The model for interpersonal behaviour” by Wubbels, Créton, Levy & Hoymayers, 1993, p. 15, In Wubbels, T. & Levy, J. (Eds.), *Do you know what you look like? Interpersonal relations in education*. London: The Falmer Press.

Each letter represents the first character of the respective interpersonal behaviour aspect. The first character of the double character reference represents the predominance of that aspect or sector over the other. For example (Figure 2.5) CS and SC are both characterised by Co-operation and Submission, however in the example CS - Cooperation is predominant over Submission, and in the later example SC - Submission is predominant over Cooperation.

Each one of these eight sectors or behavioural aspects is labelled using appropriate terminology as indicated in Figure 2.6.

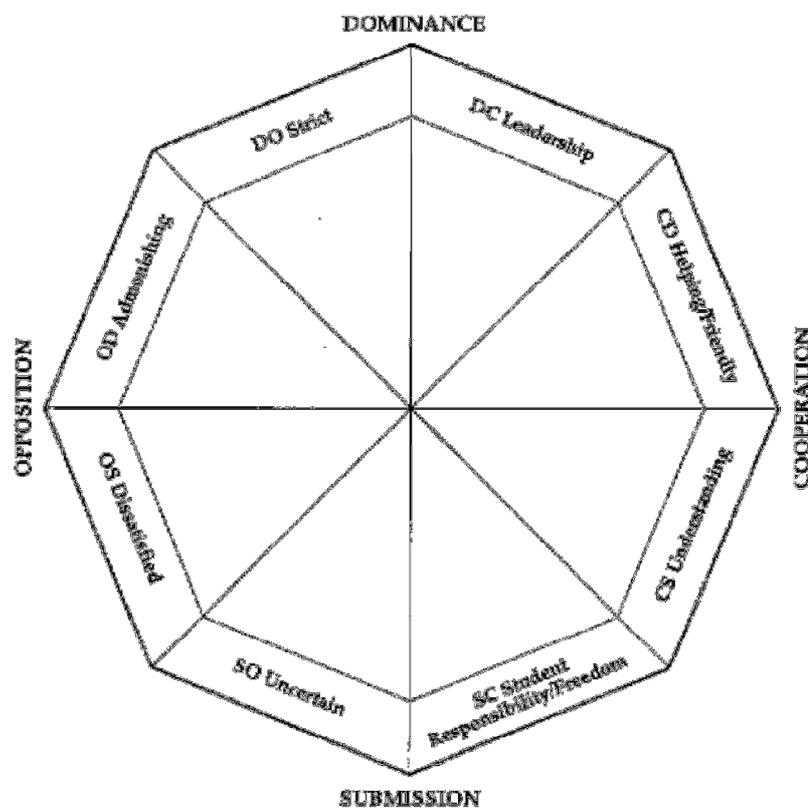


Figure 2.6: The model for interpersonal teacher behaviour

Reprinted from “Interpersonal teacher behaviour and school climate”, by Fisher, Fraser, & Wubbels, 1993, In T. Wubbels, & J. Levy (Eds.), *Do you know what you look like? Interpersonal relationships in education*, 103-112. London: Falmer.

Leary used the *Interpersonal Adjective Checklist (ICL)* to collect data regarding the four levels of behaviour. The IAC consisted of an inefficient 128 items and also collected data unrelated to the teacher.

Wubbels, Créton, and Hooymayers (1985) developed a more efficient instrument in the form of the *Questionnaire for Interactional Teacher-behaviour*, which was further developed by Wubbels and Levy (1993) into the *Questionnaire on Teacher Interaction (QTI)*.

## 2.9 Development of the Questionnaire on Teacher Interaction (QTI)

The *Questionnaire on Teacher Interaction* (QTI) was (Créton, Hermans & Wubbels, 1990; Wubbels, Brekelmans & Hooymayers, 1991; Wubbels & Levy 1993) developed and fashioned to measure the nature and quality of interpersonal relationships between teachers and students. Its aim is to assess perception on eight behaviour aspects using a five point response scale ranging from never to always.

The original QTI was developed in the Netherlands, in the Dutch language, and was developed after four trials (Wubbels, Créton, Levy & Hooymayers, 1993) in the 1980's. Wubbels and Levy (Wubbels, Créton, Levy & Hooymayers, 1992) modelled the primary version of the QTI on the ICL tool developed by Levy, in which they modified (reworded and reduced) it into a new tool which consisted of 77 items within the eight scales, with 9 to 11 items per scale.

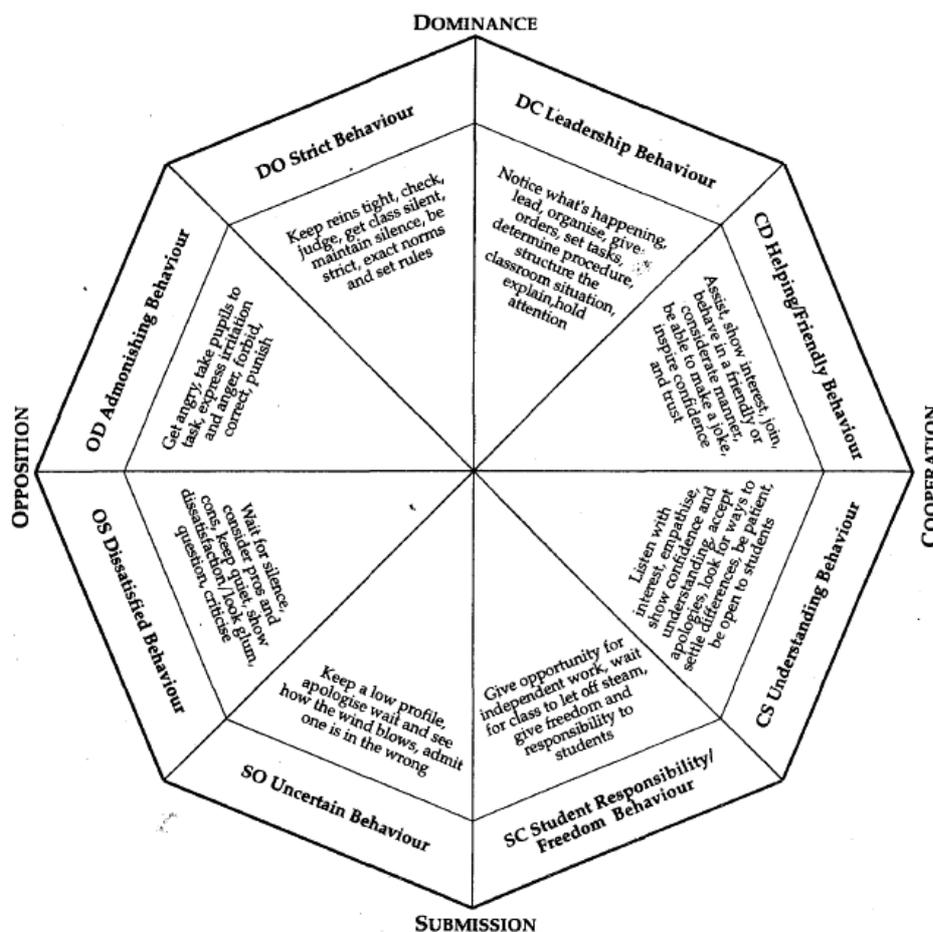


Figure 2.7: The Wubbels Model for teacher interpersonal behaviour

Reprinted from "Associations between Teacher-Student Interpersonal Behaviour and Student Attitude to Mathematics" by Fisher & Rickards, 1998, p. 5, Mathematics Education Research Journal, 10 (1), 3-15.

The Wubbels Model for teacher interpersonal behaviour presented in Figure 2.7 on the previous page, was later adapted to the USA by Wubbels and Levy in 1993 with a 64 item tool, into Australia (Fisher, Henderson & Fraser, 1996), into Singapore (Goh & Fraser, 1996), into and into Brunei (Riah, Fraser & Rickards, 1997).

A more efficient version was developed (Goh & Fraser, 1996) incorporating 48 items, and again customized by Creswell and Fisher (1997) with the development of the *Principal Interaction Questionnaire* (PQI) which assessed teachers or principal perceptions of the same eight dimensions of a principal's interaction with teachers.

## 2.10 QTI descriptions of scales

As discussed previously, the QTI operates using an eight scale circumplex model in which Wubbels, Brekelmans and Hooymaners (1991) suggest that every instance of interpersonal behaviour can be placed within the system of axis, where the closer the instances of behaviour are on the chart, the more closely the behaviours resemble each other. Overlap between the boundaries of each sector exists, in which a teacher can exhibit acceptable behaviour in each sector. Table 2.13 provides each of the QTI behavioural scale descriptors and three scale descriptors from literature plus a single scale item as examples of behaviour for each of the eight scales of the model.

*Table 2.13: Descriptions and Example Item for Each Scale in the QTI*

Scale	*Description	**Description	***Description	Item
Leadership [DC]	Extent to which teacher provides leadership to class and holds student attention.	Organizes, Gives directions, sets tasks, determines procedures, is aware of what is happening, structures classroom situations, explains, makes intentions clear, holds class attention.	Notice what's happening, organize, orders, set tasks, determine, procedure, structure the classroom situation, explain, hold the attention	This teacher explains thing clearly.
Helping /Friendly [CD]	Extent to which the teacher is friendly and helpful toward students.	Assists, shows interest, concern, is able to take a joke, inspires confidence and trust	Assist, show interest, behave in a friendly or considerate manner, be able to make a joke, inspire confidence and trust	This teacher is friendly.

*Table 2.13(cont.): Descriptions and Example Item for Each Scale in the QTI*

<b>Scale</b>	<b>*Description</b>	<b>**Description</b>	<b>***Description</b>	<b>Item</b>
Understanding [CS]	Extent to which teacher shows understanding/c oncern/care to students	Listens with interest, empathisizes, shows trust, is accepting, looks for ways to settle differences, is patient, is open	Listen with interest, empathize, show confidence and understanding, accept apologies, look for ways to settle differences, be patient, be open	If we don't agree with this teacher, we can talk about it.
Student Responsibility/ Freedom [SC]	Extent to which students are given opportunities to assume responsibilities for their own activities.	Gives opportunity for independent work, is lenient, Allows students to go at own pace, waits for class to settle down, approves of student activity.	Give opportunity for independent work, wait for class to let off steam, give freedom and responsibility, approve of something	We can influence this teacher.
Uncertain [SO]	Extent to which teacher exhibits her/his uncertainty.	Acts hesitant, apologizes, has "wait and see" attitude, is timid.	Keep a low profile, apologize, wait and see how the wind blows, admit one is in the wrong	It is easy to make a fool out of this teacher.
Dissatisfaction [OS]	Extent to which teacher shows unhappiness/dis satisfaction with student.	Is disapproving, questions seriously, looks unhappy or glum, criticizes.	Wait for silence, consider pros and cons, keep quiet, show dissatisfaction, look glum, question, criticize	This teacher thinks that we don't know anything.
Admonishing [OD]	Extent to which the teacher shows anger/temper/im patient in class.	Gets angry, is sarcastic, expresses irritation, forbids, admonishes, punishes.	Get angry, take pupils to task, express irritation and anger, forbid, correct, punish	This teacher is impatient.
Strict [DO]	Extent to which teacher is strict with and demanding of students.	Keeps a tight rein, checks, judges, demands silence, sets rules gives hard tests.	Keep reigns tight, check, judge, get class silent, be strict, exact norms and set rules	We are afraid of this teacher.

\*Adapted from Khine & Lourdasamy, 2006

\*\*Adapted from den Brok, Brekelmans, Levy & Wubbels, 2002

\*\*\* Adapted from Wubbels & Brekelmans, 2005

A Likert-type (Likert, 1932) five point response system has typically been used in previous research to rate student perceptions against the items of the QTI. A response system of zero (0) (never) to four (4) (always) has typically been placed on the questionnaire rather than requiring candidates to complete responses on a

separate sheet.

With a relatively efficient number of items, and the ability to provide a response on the questionnaire, the QTI provides a means to record candidate data quickly. This study will also seek to use a similar response system.

### **2.11 Administering the QTI**

Research indicates that the circular interaction of communication process identified within the classroom consists of, and determines, behaviour, and is established and developed early in the year (Créton, Wubbels, Hooymayers, 1993; Fraser, 1991; Wubbels, Créton and Holvast, 1988).

Even given the influences of primacy (retention of information early in a sequence) and recency (retention of information later in the sequence) by Brown (1965; 1985) and Luchins (1957) it has also been established that behaviours within the classroom are relatively stable over time (Brekelmans, Holvast & van Tartwijk, 1990; Fraser & Walberg, 1991).

Once this stability has been achieved, both students and teacher are more resistant to change (Créton, Wubbels, Hooymayers, 1993; Wubbels, Créton & Holvast, 1988; Fraser, 1991). Brekelmans (1989) suggest that a learning environment instrument can be administered, providing at least a two month settling period has taken place. Fraser and Walberg (1991) support Brekelmans suggestion that teacher-student interpersonal behaviour developed during this period and are likely to remain stable for the remainder of the year.

In relation to the 48 item short form of the Australian version of the QTI (Wubbels, 1993) the items are arranged in cyclical order:

- Items 1 – 24 assess the scales of Leadership (DC) , Helping and Friendly (CD), Understanding (CS) and Student Responsibility/Freedom (SC), and
- Items 25 – 48 assess the four remaining scales of SO – Uncertain (SO), Dissatisfied (OS), Admonishing (OD) and Strict (DO).

This allocation of items is common for the 48-item short form of the QTI used in Australia.

The QTI has typically been conducted using three versions of the QTI form. The first is called the ‘student actual form’ which assesses students’ perceptions of teacher-student interpersonal behaviour; the second is the ‘teacher actual form’ which assesses a teachers’ perceptions of their actual teacher-student interpersonal behaviour; and the third is the ‘teacher ideal’ form which assesses teachers’ perception of ideal teacher-student interpersonal behaviour.

Each version varies slightly in its wording to obtain the appropriate response. For example, the same item below relates to the Helping/Friendly (Cooperation dimension) and is written in one of three methods depending on the version of the QTI:

- *The teacher helps us with our work* (student actual)
- *I help students with their work* (teacher actual)
- *The teacher would help students with their work* (teacher ideal)

The three forms of the QTI allow researchers to collect data on students’ and teachers’ actual perceptions of teacher-student interpersonal behaviour and the perceived ideal teacher-student interpersonal behaviour of the teacher.

As this study seeks to gain the perceptions of international students of the teacher-student interpersonal behaviour, it is the student actual version that this study will seek to use.

## **2.12 Use of the QTI Internationally**

The QTI has been utilised in research internationally and well documented in literature (Brekelmans, den Brok, van Tartwijk, & Wubbels, 2005; Brekelmans, Wubbels & Créton, 1990; den Brok et.al, 2002; Fisher, Fraser & Rickards, 1996; Fisher, Henderson & Fraser, 1995; Khine, Larwood & Fisher, 2000; Koul & Fisher, 2005; Levy, den Brok, Wubbels & Brekelmans, 2003; Levy, Rodriguez & Wubbels, 1992; Madu, 2010; Rickards, 1998; Telli, S., den Brok, P., & Cakiroglu, J. 2007;

Waldrip & Fisher, 2002; Wei, den Brok & Zhou, 2009; Wubbels, Brekelmans & Hermans, 1987; Wubbels, Brekelmans, Créton & Hooymayers, 1990; Wubbels, Brekelmans & Hooymayers, 1992; Wubbels, Créton & Hooymayers, 1985; Wubbels & Levy, 1991, 1993). This research and other literature will now be discussed in relation to their respective study locations.

### **2.12.1 The QTI in the Netherlands**

A study involving 1,105 students, across 66 physics classes in the Netherlands was administered using the QTI (Créton, Hermans & Wubbels, 1990; Wubbels, 1993). The study investigated associations between teacher-student interpersonal behaviour in the classroom and the students' affective outcome. The study identified students' perceptions of interpersonal behaviour accounted for a large amount of difference in outcomes between classes of the same level of ability. The study revealed that the Cooperation scales of Leadership (DC), Helping/Friendly (CD), Understanding (CS) and Student Responsibility/Freedom (SC), and the Dominance scales of Strict (DO), Leadership (DC) and Helping/Friendly (CD) are positively related to student achievement. The Dominance scales of Student Responsibility and Freedom (SC), Uncertain (SO) and Dissatisfaction (OS) were negatively related to student achievement. These results found that the proximity dimension is more closely associated with enjoyment and attitude than the influence dimension, which has also been confirmed in later studies (den Brok, Brekelmans, & Wubbels, 2004; Kyriakides, 2006) which have identified a positive relationship between student perceptions of the Influence and Proximity dimensions or their related (sub) sectors and cognitive student outcomes.

In 1991, Wubbels Brekelmans and Hooymayers reported on a study comparing perceptions on the QTI scale with student cognitive outcome. The study highlighted that higher cognitive scores were associated with teachers perceived as being more strict, as a leader and displaying a friendly/helping behaviour, whilst there was a negative correlation between student cognitive outcomes and the behaviour scales of freedom, uncertain and dissatisfied.

A study in the Netherlands in 1992 by Brekelmans and Wubbels discovered that

teachers and students tend not to agree regarding their perceptions of the interpersonal behaviour within the classroom environment. This Dutch study involved 19,671 students and 542 teachers across 1,156 teacher-class combinations in over 100 schools. Brekelmans and Wubbels (1992) made particular reference in stating that the difference in perceptions teacher-student interpersonal behaviour between the teacher and students is greatest when the type of interpersonal behaviour associated with lower student outcomes is present.

### **2.12.2 The QTI in Brunei**

The perceptions of 3,104 primary school students, from 136 classrooms, in 23 schools were assessed using the QTI in Brunei Darussalam (Scott & Fisher 2001; 2003). The study focused on the assessment of teacher interpersonal behaviour in science classes and students' enjoyment of science class. The study developed a hybrid of the QTI in the language of Malay called the *Questionnaire on Teacher Interaction Elementary* (QTIE), and also employed the use of the *Enjoyment of Science Lessons* (ENJ) tool (Fraser & Fisher, 1982a; 1982b). The study indicated to researchers that the students perceived the teachers as mostly good leaders, helping/friendly, understanding and strict, however seldom allowing student responsibility, and were seldom perceived as uncertain, dissatisfied or admonishing. In relation to an increase in cognitive achievement by students, teachers must display more leadership, friendly and understanding behaviours whilst reducing uncertain and dissatisfied behaviours.

Khine, Larwood and Fisher (2000) reworked 20 statements from the 48 item Australian version of the QTI to suit the local context of classrooms in Brunei. The study involved 276 students from 14 classrooms which demonstrated reliability values of between 0.60 and 0.76 using students as the unit of analysis.

### **2.12.3 The QTI in Singapore**

Goh and Fraser (1996) surveyed 1,512 students, in 39 primary classrooms from 13 schools in Singapore to validate the *Questionnaire on Teacher Interaction Elementary* (QTIE), in which the focus was to assess associations between gender

differences and student perceptions of the teachers interpersonal behaviour. Goh and Fraser (1996) altered the QTI versions to simplify the language of the tools and reduced the responses to a three-point system. The study provided further validation data and consistency for two level analysis and found that female students perceived their teachers' interpersonal behaviour more favourable than male students.

Lourdusamy and Khine (2001) and Khine and Lourdusamy (2005) supported the validity and reliability of the QTI in the Singaporean context. The researchers found that student perception differed from those perceptions of trainee teachers and suggested the QTI as a suitable tool for different cultural context and professional development.

In 2008, Woo-Tan conducted a study which investigated associations between student attitude and student perception based on the perceptions of students of their Mathematic and English teachers via the actual and ideal versions of the QTI. The study involved 913 students and 37 mathematics and English teachers from an independent school in Singapore. Teacher behaviour was found to be less than that of the student ideal, in which teacher experience and students' grade level were factors that contributed to students' perceptions of teacher interpersonal behaviour. Positive associations were found between student attitudes to Mathematics and English and their perceptions of the teacher interpersonal behaviour. Using the eight typologies of student perception based upon interpersonal behaviour, Singaporean Mathematics teachers were viewed as directive and authoritative whereas English teacher were viewed as tolerant-authoritative. Humour and passion were found to be good qualities towards those of the positive behavioural scale of the QTI.

#### **2.12.4 The QTI in the USA**

Studies in the USA (Levy, Wubbels & Brekelmans, 1992) have concluded contradictory findings in which student age was found to be unrelated to the dimensions of influence and proximity, while later studies (Levy, Wubbels, Brekelmans & Morganfield, 1997) have reinforced that significant relationships do exist between age and the QTI scales, with findings that older students perceived their teachers as being more dominant.

Levy, den Brok, Wubbels & Brekelmans (2003) found that students' achievement and their association of teacher behaviour were negatively correlated in respect to the dimensions of influence and proximity. In the same study it was concluded that students' perception were not related to their perceptions of teacher influence, and were negatively related to teacher proximity when associated with class size.

### **2.12.5 The QTI in Korea, India, Turkey and Fiji**

The QTI has also been translated into Korean (Kim, Fisher & Fraser, 2000) and was administered to 543 eight grade students across 12 secondary schools. Reliability figures from this study of 0.61 to 0.83 reinforce the reliability and validity of the QTI as a learning environment instrument.

One of the first studies using the QTI in India (Koul, 2003) involved 1,021 students from 31 science classes from year nine and ten across seven co-educational schools. The study investigated associations between Indian students' perceptions of teacher-student interactions and attitudes towards science. Reliability scores ranged from 0.53 to 0.72. Teachers were observed as being from the negative scales of Uncertain, Dissatisfied and Admonishing, whilst students perceived that teachers as demonstrating qualities towards the leadership and understanding scales. A later report from this study (Koul & Fisher, 2005) indicated that cultural background, designated by language spoken at home, provided differences in student perception of the learning environment and teacher-student interpersonal behaviour.

Şimşeker (2005) conducted a study in İstanbul, Ankara, İzmir, Adana, Bursa, and Hatay with 1317 eighth grade students. The study aimed to investigate eighth grade students' perceptions of their mathematics teachers' interpersonal behaviours, mathematics teachers' perceptions of their own interpersonal behaviours and students' perceptions of their teachers' interpersonal behaviours related to attitude to mathematics, mathematics achievement, student gender, teacher gender, and socio-economical background using the *Questionnaire on Teacher Interaction* (QTI) and a mathematics attitude scale. The study validated a Turkish version of QTI to an acceptable degree of validity and reliability, and found that students perceive their

mathematics teachers as displaying high levels of leadership, helpful/friendly, understanding, and displaying strict behaviours. The study indicated an association between students' perceptions of their mathematics teachers' interpersonal behaviours and attitude towards mathematics and mathematics achievement. Students with higher cultural and economic background perceived their teachers more favourably.

Telli, Cakiroglu and den Brok (2006) undertook a study to assess student's perceptions of their science teacher's interpersonal behaviour and attitude towards science in Turkey. 2,342 responses from year nine, ten and eleven students' from 81 science classrooms across 14 public schools was collected. With the student as the unit of analysis reliability values of 0.44 to 0.84 were recorded, and with the class as a unit of analysis the reliability values were recorded as 0.65 to 0.95. Against the two-dimensional coordinate system of the Leary model students were observed as perceiving their teachers as dominant and highly cooperative, whilst differences in student perception were also observed against the variable of subject.

Research conducted by Coll, Taylor and Ali (2001) investigated tertiary level teacher-student interactions using the QTI in Fiji. 257 second year science students responded from 12 ethnicities from within a Pacific Island Regional University. The study concluded that there was good reliability recorded for the QTI instrument for all scales. Students perceived their classrooms to be teacher dominated in which ethnicity resulted in only a few differences in perceptions of teacher-student interaction. Gender provided substantial differences with females perceiving their environment more favourably than males.

#### **2.12.6 The QTI in Hong Kong**

A recent study in Hong Kong (Sivan, Chan & Kwan, 2014) sought to use the 48 items of the QTI which were firstly translated into Chinese by a university translator and then independently back-translated into English by a second translator. The C-QTI tool emerged and was piloted by interviewing five students who confirmed their understanding of the items and their response categories. The main study collected data from two samples (370 and 369) of primary school students in Hong Kong. The

study found a varied reliable measure for each behavioural scales using the C-QTI with four of the scales reporting reliability levels too low. The C-QTI was found to reflect the underlying circumplex model of the QTI where correlations were found to be consistent with previous research in Cyprus and Hong Kong. Of interest to this study, was that the researchers identified one of the methodological limitations as being the use of only one translator to translate and back translate items from English to Chinese.

### **2.12.7 The QTI with English as a Foreign Language (EFL)**

den Brok, Brekelmans and Wubbels (2004) undertook the first study using the QTI with students with English as a Foreign Language (EFL). The study sought to determine the effectiveness of secondary education teachers' interpersonal behaviour in Physics and EFL classes. The study reported that associations exist between interpersonal teacher behaviour and student outcomes, where class-level variance of between 14.7 and 67% was recorded in the Physics sample and between 3.5 and 50% in the EFL sample. The researchers further suggest that the variable may be relevant for effectiveness research.

A later paper (Wei, den Brok & Zhou, 2009) examined the relationship between EFL teachers' interpersonal behaviour and students' fluency in English in secondary education in China, in which the QTI was translated into Chinese. Given the relatively small sample size, the study found that reliability coefficients for the scales of the QTI were adequate, whilst factor analysis provided support for the theoretical framework of the QTI. Findings suggested that teacher uncertainty was negatively correlated with student achievement, and that the degree of teacher cooperation with students was the only significant predictor for student achievement. Based on Chinese student perceptions the tolerant-authoritative profile was the most common interpersonal style, however results indicated inconsistencies between student perceptions of preferred and actual teacher interpersonal behaviour.

The studies described above are of interest to this thesis as the international students who participated in this study primarily spoke English as a second language.

### 2.12.8 The QTI in Australia

The Science and Mathematics Education Centre (SMEC) at Curtin University of Technology in Perth Western Australia, has provided the opportunity for the extensive use of the QTI in a variety of Australian classrooms. This section of the chapter will discuss these studies and findings, most of which have been conducted through SMEC. This is a particularly relevant section as the basis for the instrument to be developed in this study is provided by the *Questionnaire on Teacher Interaction* (QTI).

A study conducted in seven schools in Tasmania and Western Australia, with 46 teachers and 792 students, was undertaken using the QTI and the *School Level Environment Questionnaire* (SLEQ) to investigate associations between school learning environment and teacher interpersonal behaviour (Fisher, Fraser, & Wubbels, 1993; Fisher, Fraser, Wubbels & Brekelmans, 1993). The study sought to distinguish between school-level and classroom environment whilst also developing and validating the SLEQ. The teachers completed the SLEQ and two copies of the QTI. The first copy of the QTI asked teachers for their actual perception of the interpersonal behaviours, and the second asked teachers for their preferred or ideal teacher interpersonal behaviour. Each teacher then requested one class of theirs to complete the QTI (student actual version). The study found that a teacher's behaviour in class had little influence on how students perceive the school environment, and also established that the QTI and SLEQ indicated a weak relationship.

A study in Tasmania and Western Australia focusing on year 11 science and mathematics classrooms, with a sample of 792 students and 46 teachers, was conducted using the economical 48-item version of the Australian version of the QTI (Wubbels, 1993). The study required students and teachers to complete two variations on the 48-item QTI. The students first questionnaire asked them about their perceptions of their science and mathematics teachers' interpersonal behaviour, whilst the second questionnaire asked them to identify their best (preferred) teacher behaviour qualities. Teachers were asked to complete similar questionnaires with the first asking them about their current behaviours, and the second questionnaire asking

about their ideal teacher behaviour. The research indicated that students identified strong teachers as displaying the behavioural qualities of leadership, friendly and understanding and less of the behavioural aspects of uncertain, dissatisfaction and admonishing. The study also found that teachers were more satisfied with their behavioural aspects than were those perceptions of students of the teachers' behaviour. The study also summarised two categories of teacher; those that display leadership and strict behavioural qualities, and those that displayed student responsibility and freedom qualities.

1995 saw Fisher, Henderson and Fraser report on a study using the QTI with high school biology students in Tasmania. The study utilised the economical 48-item Australian version of the QTI, and captured data from 489 students in 28 biology classes. The study sought to identify associations between student perceptions of the interpersonal behaviour of their teachers in the biology classroom environment and student outcomes. The study identified student outcomes via three methods; of attitude, achievement on a written examination and performance on practical tests. Their findings summarised that students perceived strong teachers with behavioural scales of leadership, helping/friendly, and understanding, and that associated student attitude scores were higher when students perceived these behavioural characteristics. Teachers perceived as allowing responsibility and freedom had a positive association with student performance in practical tests, whilst teachers perceived as being strict were associated with a negative correlation on student performance in practical tests. Henderson, Fisher & Fraser (2000) further reported from this study that an increase in student attitudinal scores was associated with student perceptions of teachers with leadership behavioural qualities who also integrate practical and theory work whilst giving more attention to rule clarity.

In 1995 the QTI was used by Fisher, Fraser and Creswell to undertake research into professional development of six science teachers within schools in Australia. The mean scores for the behavioural scales of each of the six teachers were calculated using three forms of the QTI; teacher actual, teacher ideal and student actual. Using a summarised table, teachers were able to use an empirical measure for self-reflection, providing a strategy for change and improvement of their interpersonal relationships.

A study involving the 48-item short form of the Australian version of the QTI and a seven-item attitude scale of the TOSRA (Rickards & Fisher, 2000b) was used to investigate associations between science and mathematics students' perceptions of their classroom learning environment, cultural background, attitude and achievement. The study collected data from 3,515 students from 164 high school science and mathematics classrooms, in 42 schools across two states; Tasmania and Western Australia. The study found a negative correlation between student attitude and the perceived teacher behaviour of admonishing, dissatisfied, uncertain and strict, and a positive correlation between the perceived teacher behaviour of leadership, helping/friendly and understanding. The study also highlighted a difference in perception of teacher behaviour based on sex with female students perceiving their teachers more positively than their male counterparts, and based on cultural background with students identifying as being from an Asian cultural background perceiving their teachers more positively.

Fisher and Rickards (1998) conducted a study to examine teacher-student interpersonal behaviour and student attitude within mathematics classrooms. With a sample of 405 students and 21 teachers in nine schools the researchers were able to confirm the reliability of the QTI. Fisher and Rickards suggest that findings were similar to previous research in which students attitudes scores were higher when students perceived their teachers with more leadership and helping/friendly behavioural scale characteristics. There was a similar decrease in attitude scores when teachers were perceived with behavioural scales of dissatisfied, admonishing and strict.

Fisher and Stolarchuk (1998) completed a study which utilised the 48-item short form of the Australian version of the QTI, a scale from the *Test of Science-Related Attitudes* (TOSRA) and a scale from the *Test of Enquiry Skills* (TOES). The studies purpose was to assess the impact of laptop computers on student attitude, achievement and perception of the teacher-student interpersonal behaviour within the science classrooms. Using 14 independent schools in four states of Australia, the test was administered to 433 laptop students in 23 different science classrooms, and 430 non-laptop students in 21 different science classrooms. Fisher and Stolarchuk (1998) concluded that associations between laptop, student's perceptions of teacher-student

interpersonal behaviour in science classes and students attitude to science is strong, and so too is the student's cognitive achievement.

A study in Tasmania involved 1,883 high school students (year 11 and 12) and 108 teachers within government schools. This population was investigated by Fisher, Kent and Fraser (1998) using the QTI and the *Myers-Briggs Type Indicator* (MBTI) on teacher personality. The study sought to assess associations between student and teacher perceptions of teacher-student interpersonal behaviour and teacher personality. It was identified that a moderate association exists between interpersonal teacher behaviour and teacher personality. A further correlation was found to exist between the teacher personality, level of student freedom and responsibility and students perception of their teachers' interpersonal behaviour.

The short version of the Australian version of the QTI was used in a study reported by Rickards and Fisher (1999) in which the researchers also recorded valuable data in regards to cultural background, attitude and cognitive achievement. The study was conducted in Tasmania and Western Australia and involved 43 schools, 3,215 students from 158 science classrooms, and provided valuable benchmark reliability data for the QTI. The study provided evidence that there was a strong positive correlation between the behavioural scales of Leadership, Helping/Friendly and Understanding, and a negative relationship for the behavioural scales of Uncertain, Dissatisfied, Admonishing and Strict. For the positive scales there was found to be a higher level of cognitive achievement than those recorded as being negative scales. The study identified further research opportunities based upon associations between student perceptions of the teacher-student interpersonal behaviour and cultural background and student sex.

In 2003, Waldrip and Fisher used the QTI to identify exemplary science teachers, following on from previous work completed by Treagust (1991) who investigated and described two exemplary biology teachers who possessed classroom management practices that allowed for effective student learning. Using the mean and standard deviation data, the study found that exemplary teachers were those identified by students' with Leadership, Helping/Friendly and Understanding scales whose standard deviation was one above the mean, whilst they also displayed the

behavioural scales of Uncertain, Dissatisfied and Admonishing one deviation below the mean.

A key recommendation to this study by Waldrip and Fisher (2007) summarised the QTI as an instrument can be implemented in a variety of geographically diverse locations, in which the effect of teacher interpersonal behaviour to student attitude, achievement, gender and cultural background is of principal importance of identifying professional development opportunities.

In 2006, Nijveldt, Beijaard, Brekelmans, Verloop and Wubbels undertook to develop and validate a procedure to assess the interpersonal competencies of teachers. Using a combination of tools, the researchers incorporated the QTI with an observation and self-reflection instrument. With four separate assessors for the same beginning teacher the concept of construct-irrelevant variance and construct under-representation were used to explore the validity of the assessment procedure. The study found a satisfactory use of multiple assessment instruments and validity of the assessment procedure.

This study seeks to use the 48 item short form of the Australian version of the QTI to investigate international student perceptions of teacher student interpersonal behaviour within the international pathway learning environment.

### **2.12.9 The QTI in longitudinal studies**

There has been limited research involving the use of the QTI in longitudinal studies, in which changes in interpersonal behaviour can be assessed over time. Longitudinal studies that have been conducted have suggested that there is an increase in leadership behaviour with parallel decrease in uncertain behaviour in a classroom over time (Créton, Hermans & Wubbels, 1990).

Brekelmans, Holvast & van Tartwijk (1990) reported that as a teacher becomes more experienced (up to 10 years of teaching), that a similar increase in leadership and decrease in uncertainty exists, which stabilises regardless of experience. Similar research by Créton, Hermans and Wubbels (1990) indicate that teachers increase in the scales of Admonishing and Dissatisfaction, and decrease in the scales of Helpful/

Friendly and Understanding as they gain experience.

A ten year study in the USA (Levy, Wubbels, Brekelmans & Morganfield, 1994) on effective teaching, involved 550 students from three cultures; 117 Hispanic, 111 Asian and 322 from USA, from 38 classes, in which each class had a mix of cultures. The study concluded that Latin American students perceived the teacher as more dominant, while USA students perceived their teacher as more submissive.

Continued research in the USA (den Brok, Levy, Rodriguez & Wubbels, 2002; den Brok, Levy, Wubbels & Brekelmans, 2003) has also shown that students' perceptions of their teacher are associated with gender (sex), ethnic background, socio-economic status, age, teacher experience, attitude and achievement and subject taught.

#### **2.12.10 The QTI in cross-national studies**

Wubbels and Levy (1991) studied student perceptions of interpersonal behaviour using data from The Netherlands and the USA. The study compared the English and Dutch version of the QTI, set out to validate the English version of the QTI, and compared student and teacher perceptions of interpersonal teacher behaviour across the two countries. The pioneering work in cross-national studies using the QTI by Wubbels and Levy (1991), created an instrument that allowed for comparison of variables such as cultural background. The study was able to identify that Dutch teachers identified student responsibility and freedom as more important behavioural scales, whereas American teachers saw the behavioural scale of strict as more important. The developments that occurred during this study provided a foundation for further modifications to the QTI, such as the Australian 48-item version, and new frontier in cross-national research.

A cross-national study (Levy, Créton & Wubbels, 1993) using the QTI collected and analysed data from The Netherlands, Australia and the USA, in which students were asked to rate their best and worst teachers. This resulted in students indicating that their best teacher displayed the behaviours of Leadership, Helping/Friendly and Understanding, whilst their worst teachers the behaviours of Admonishing and

Dissatisfied.

Fisher, Rickards, Goh and Wong (1997) conducted a study across Singaporean and Australian biology classrooms. The study used the 48 item QTI and the seven-item attitude scale of the TOSRA. The study involved 720 students in 20 science high school classes (year 8 and 9) in Singapore, and 705 students in 29 classes (year 8 and 9) in Australia, allowing for validation of the QTI in cross-national studies. The study focussed on differences in students perceptions of teachers in classrooms in the two countries, and identified that students attitude scored higher when students perceived the teacher with greater Leadership and Helping/Friendly behaviours; however the differences across countries was quite small with Singaporean teachers being perceived as more Strict and Australian teachers as allowing more Student Responsibility and Freedom.

A cross-national study in Brunei and Australia by Rickards, Riah and Fisher (1997) proved the QTI to be a valid and reliable instrument with reliability values of between 0.58 and 0.80 for Brunei responses and 0.60 to 0.88 for Australia responses when the student was used as the unit of analysis.

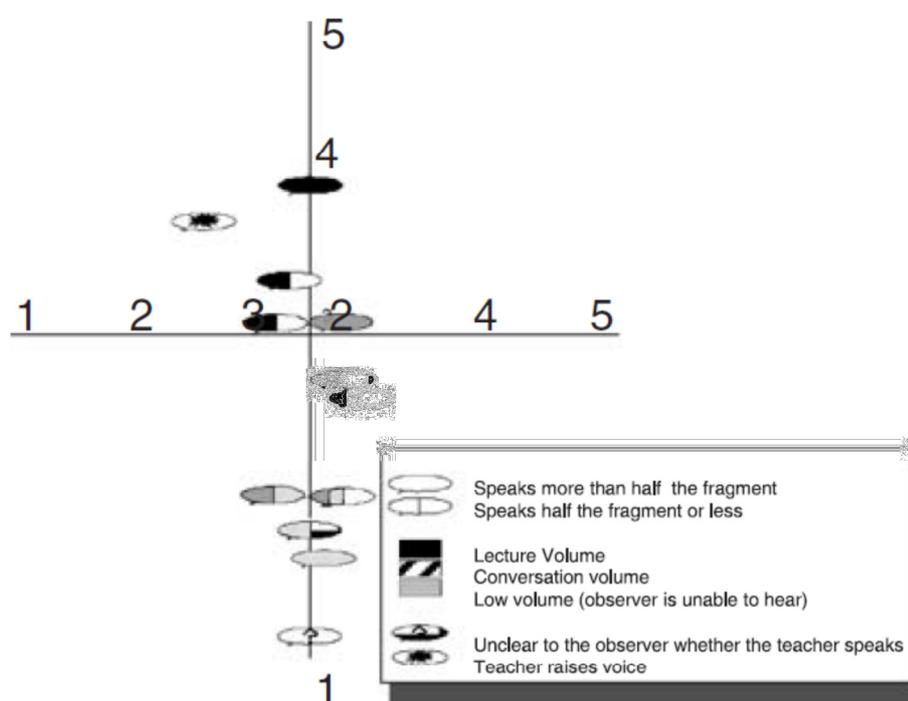
A study funded by the Netherlands Organisation for Scientific Research (den Brok, Fisher, Brekelmans, Rickards, Wubbels, Levy & Waldrup, 2003) utilised the QTI in secondary science classrooms across six different countries of Australia, Brunei, Slovakia, Singapore and the USA. Using multilevel structural equation modelling, correlation analysis and other statistical analysis to construct validity the researchers also concluded that only slight differences existed between scale positions between countries and determines that further studies were required to validate the QTI in cross-cultural analysis.

Van Oord and den Brok (2004) sought to investigate student and teacher perceptions of teacher-student interpersonal behaviour using 176 students and 39 teachers from a United World College in Norway and one in Wales. The study found that small differences were observed in the profile of preferred teaching between teachers and students, in which differences were also found with respect to students' gender and students' and teachers' continent of origin.

### 2.12.11 Non Verbal behaviour

Some studies have also included non-verbal behavioural aspects such as teacher position, voice and facial expressions. A study by Wubbels, Brekelmans, den Brok, and Tartwijk (2006) investigated the contribution of non-verbal behaviours to the perception of the interpersonal relationship. This research was at the message level using the five channels of behaviour previously mooted by Harper, Wiens, & Matarazzo (1978):

- space (the use of classroom space by a teacher);
- body (the teachers position and movement of their body such as the trunk, arms and head),
- face (different facial expressions),
- visual behaviour (eye contact duration between the teacher and students), and
- voice (the non-content aspects of speech).

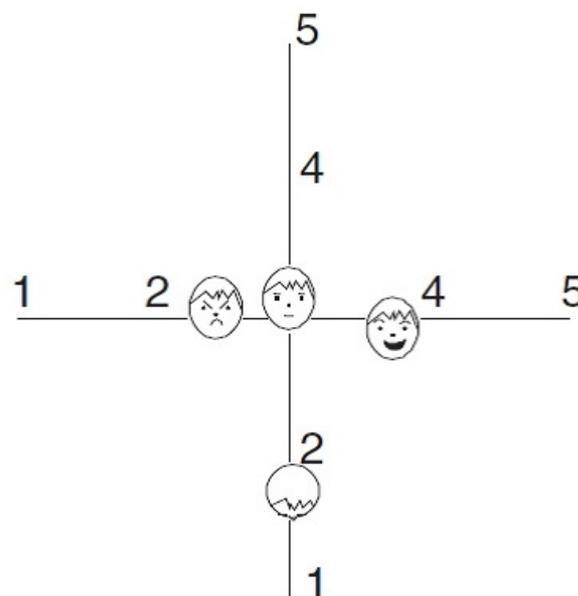


*Figure 2.8: Dimension scores and the use of voice.*

Reprinted from “An interpersonal perspective on Classroom Management in Secondary Classrooms in the Netherlands”, by Wubbels, T., Brekelmans, M., den Brok, P., & Tartwijk, J., 2006.

Wubbels, Brekelmans, den Brok, and Tartwijk, (2006) found that the voice channel, as represented in Figure 2.8 on the previous page, was the most important factor when explaining variance in the influence ratings. This was depicted where the longer a teacher speaks using a lecturing volume; the more dominant the teacher was perceived.

The face (Figure 2.9) had the strongest correlation for explaining variance in the proximity dimension with teacher's facial expressions of laughter, neutral and angry.



*Figure 2.9 Dimension scores and facial expression.*

Reprinted from “An interpersonal perspective on Classroom Management in Secondary Classrooms in the Netherlands”, by Wubbels, T., Brekelmans, M., den Brok, P., & Tartwijk, J., 2006.

Another such study by Dutch and Australian researchers (van Tartwijk, Brekelmans, Wubbels, Fisher & Fraser, 1998) investigated the relationship between student's perceptions of the teacher interpersonal style and the rating of judges' of the interpersonal aspect of a teachers message. This study found a significant correlation between students' perceptions and judges' ratings during whole class teaching, and no correlation during the individual seatwork.

A further study (Zandvliet, 2003) conducted into classroom environments in emerging internet classrooms in Canada involved the evaluation of physical and psychosocial learning components of Internet enabled classrooms. It was observed that computerised classroom environments involve competing interrelated physical, psychosocial and contextual factors in a complex system which need to be addressed when creating good instruction.

#### **2.12.12 Recent studies using the QTI**

The *Personality Questionnaire for Middle School Students* (PQMSS) and *Questionnaire on Teacher Interaction* (QTI) were used in a study by Tan and Wang (2013). This study involved a final sample of 487 students and 25 head teachers from five middle schools in Beijing. This study sought to investigate direct and indirect influences of teacher-student interaction and student personality on teacher-student relationship quality by structuring a path model of teacher-student relationship quality. Amongst the findings of the study, the researchers concluded that an understanding of how different student characteristics contribute to teacher-student interactions may enhance teacher sensitivity and flexibility when interacting with different students.

Other recent use of the QTI has been conducted with pre-service teacher education students (Dorman, 2014) and with personality traits as a focus (De Jong, Mainhard, Tartwijk, Veldman, Verloop & Wubbels, 2014). Similar studies have been conducted in Cyprus (Charalampous & Kokkinos, 2014) investigated student personality traits, and in Greece (Poulou, 2014) where student emotional and behavioural difficulties were investigated.

#### **2.12.12 Variables used with this study**

The previous section of the literature has identified the use of the QTI and a range of variables that have been associated with student perceptions of the teacher-student interactions of the learning environment. The final section of this chapter will discuss previous research that has incorporated variables that are similar to those identified in this study, and used the QTI or another similar learning environment

tool identified earlier within this chapter.

### ***Student perception and sex***

Moos (1979) found significant differences between the perceptions of boys and girls in single sex schools, whilst Owens and Stratton (1980) found that girls preferred more competition than boys, and Byrne, Hattie and Fraser (1996) found boys preferred more friction, competitiveness and differentiation while girls prefer more teacher structure, personalisation and participation.

Lawrenz (1987) found that differences in students' perception of the psychosocial learning environment reduce with student age. This finding was also supported by research (Keeves & Aikenhead 1995; Keeves & Kotte, 1995) which found that female students held a more positive attitude to schooling, however this decreased with student age.

Studies by Friedler and Tamir (1990), Husén, Fägerlind, and Liljefors (1974), Jegede and Okebukola (1992), Lawrenz (1987), Parker, Rennie, and Fraser (1996) Rickards (1998) have all reported differences in student perceptions of teacher interpersonal behaviour based upon sex.

A study focusing on science class large-group discussions (Jones & Wheatley, 1990) reported that teachers tended to elaborate further on male questions compared to female questions based on scientific concepts.

Young and Fraser (1990) found males performed better to diagrammatic questions, whilst females performed better on descriptive items with biological content. These differences arose from research involving different types of multiple choice questions.

Ingelton (1995) suggests that differences observed based upon sex is a reflection of student emotion including fear, hope, pride and shame, while Stanley (1996) found that student self-confidence can be linked to student achievement in science.

Ferguson (Ferguson & Fraser, 1998) concluded that differences existed between boys and girls perceptions of learning environments when changing from grade six to

grade seven within Tasmanian and Australian science classes. The study of over 1,500 students also concluded that some scales of the student perception changed based upon school size and pathways.

Lim (1995) suggests that females perceive they have control over their own learning; male students have more control of working at their own pace in their own time; and that differences in sex are most influential on perceptions of the actual learning environment.

Lewin (2006) found that men had comparatively lower enrolment rates than women, attain worse grades, and are less likely to complete their qualification and where they do complete a qualification take longer to complete their desired course.

In 2008, Sullivan, Riccio and Reynolds suggested that females aged 8 – 18 were more satisfied with their school, had higher levels of affiliation with school and a more positive relationship with their teachers than their equivalent aged male counterparts.

Even though Tulloch (2011) found no statistical difference based on sex it was suggested that females enjoyed their classrooms more than males.

In observing these trends and contributions to literature describing associations in student perceptions and attitude to study based upon sex it appears pertinent to include sex as a factor when investigating associations of international student perception of the Australian based pathway learning environment.

### ***Student perception and cultural background***

International education, and in turn the international pathway environment is multicultural in nature. Previous studies (Giles & Franklyn-Stokes, 1989; Segall, Dasen, Berry, & Poortinga, 1990; Rickards, 1998) indicate that people's communication and perception is influenced by their cultural background. Though no research has been conducted using the QTI to measure teacher-student interpersonal behaviour within an international pathway environment, there has been extensive research (Hofstede, 1980; Hui & Villareal, 1989; Jegede & Okebukola,

1988; Lonner, 1980; Riah, Fraser & Rickards, 1997; Waldrip & Taylor, 1995; Rickards 1998) to indicate that cultural background is a factor within multicultural learning environments.

Literature involving teacher-student interpersonal behaviour in international settings has also made associations between students' cultural background, communication and perception within the learning environment. For example Levy, Wubbels, Brekelmans, and Morganfield (1997) found that students of Latino, Asian and United States background is significantly related in the way they viewed the teachers' interaction behaviour. The research also found that teachers were unaware of the cultural differences in their interactions with students in their class.

Evans and Fisher (2000) and Rickards and Fisher (1997) concluded that Asian students perceived their classes more positively than students of other cultural groups. In the same Australian studies (Rickards & Fisher, 1997; Rickards, 1998) concluded that students who used Asian languages at home were more positive in the way they perceived their teachers.

Studies by Evans and Fisher (2000) in Australia and den Brok, Levy, Wubbels and Rodriguez (2003) in the USA have also suggested that cultural change, or acculturation, is an important factor and one in which dominance is reduced the longer the student remained in the new country.

A study of Dutch and Turkish students by den Brok, Telli and Cakiroglu (2009) identified that Dutch teachers were perceived lower in influence and proximity compared to their Turkish colleagues across the three subjects of Biology, Chemistry and Physics. Subjects with differences indicated that Turkish teachers were perceived higher in all subjects on Influence, but differences in Proximity were minimal.

### ***Student perception and student outcomes***

Research from the 1960's (Flanders, 1960, 1964) and 1970's (Hargreaves, 1972) has indicated associations between teacher-student interaction with student attitude and achievement, and more importantly highlighted this as an area for future research.

Fraser (1986, 1991 & 1994) has reported that a great deal of research has been conducted into associations between cognitive and affective outcomes of students based on their perceptions of classroom learning environments (den Brok, Brekelmans & Mainhard, 2010; den Brok, Brekelmans, & Wubbels, 2004).

Further studies (Cheng, 1994; Fisher, Henderson & Fraser, 1997; Fraser & Fisher, 1982a, 1982b; Henderson, Fisher & Fraser, 2000; Idris & Fraser, 1997; Wong & Fraser, 1994, 1995, 1996) have reliably reinforced literature that perceptions of classroom learning environment account for variation in student outcomes; and therefore it may be implied that improvements in classroom learning environments can contribute to more positive student outcomes.

Other research (Rosenshine, 1971) summarised that there were only consistent, not strong correlations, between teacher behaviour and student achievement.

Further research in the USA (Green, Dugoni, Ingles & Camburn, 1995) indicates it is student effort that influences student achievement, rather than student achievement being a direct consequence of social background or attendance.

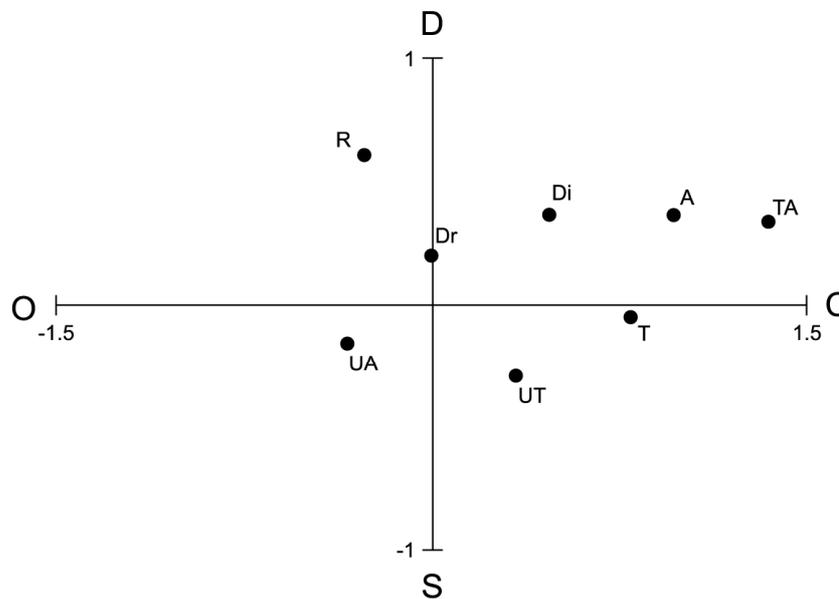
In more recent times, a large amount of research (Fraser, 1991, 1994; Fraser, Walberg, Welch & Hattie, 1987; Haertel, Walberg and Haertel, 1981; McRobbie & Fraser, 1993; Rickards, 1998; NeSmith, 2003; Fisher, den Brok, Rickards, 2006; Reid, 2007) has demonstrated that students' perceptions of science or mathematics classrooms have been positively associated with student attitude and with student cognitive measures.

### **2.13 Typologies of student perception of interpersonal behaviour**

A practical application of the QTI is that a sector profile (eight scores) can be produced and represented by a diagram, where the degree of a shaded sector relates to the height of the mean scale score (Wubbels, Brekelmans & Hooymayers, 1993).

Dutch and American studies (Brekelmans, 1989; Brekelmans, Levy & Rodriguez, 1993) distinguished eight different types of patterns (Figure 2.10 – next page)

labelled Directive (Di), Authoritative (A), Tolerant and Authoritative (TA), Tolerant (T), Uncertain/tolerant (UT), Uncertain/Aggressive (UA), Repressive and Drudging (Dr).



**KEY:** A=Authoritative, Di=Directive, Dr=Drudging, T=Tolerant, R=Repressive, TA= Tolerant/Authoritative, UA=Uncertain/Aggressive, UT=Uncertain/Tolerant

*Figure 2.10: Main points of the eight types of patterns of interpersonal behaviour*

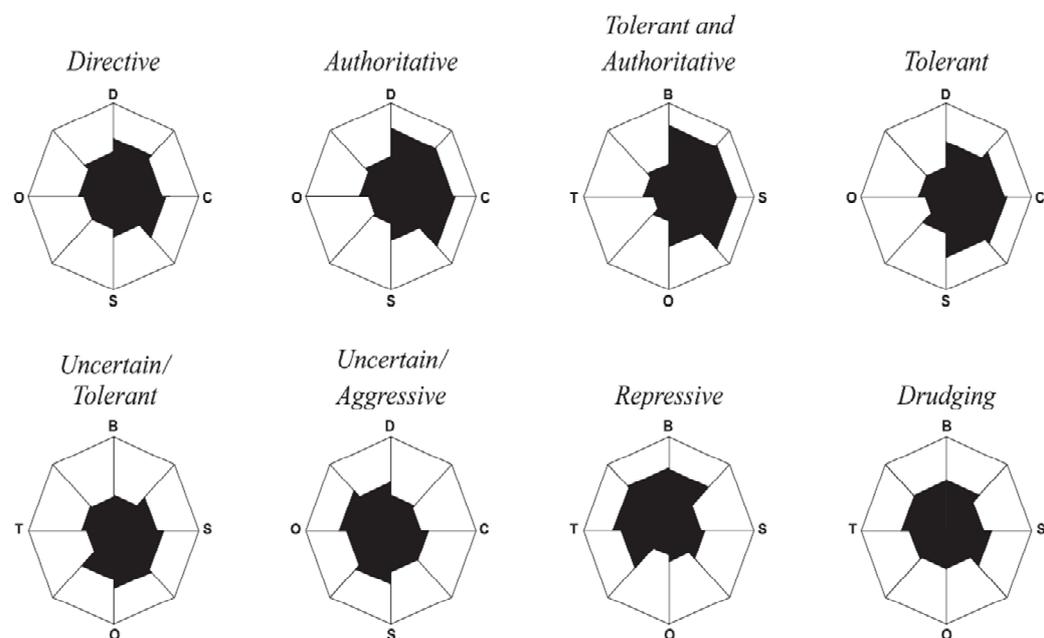
Reprinted from “Teacher experience and the teacher-student relationship in the classroom environment”, by Brekelmans, M., Wubbels, T., & den Brok, P., 2002, In S. C. Goh & M. S. Khine (Eds.), *Studies in educational learning environments: An international perspective* (pp.73-100). Singapore: New World Scientific.

Registering high on the proximity dimension are the teacher-student interpersonal types of Authoritative, Tolerant/Authoritative and Tolerant for which the Tolerant type rates lowest on the influence dimension. Directive, Uncertain/Tolerant and Drudging behavioural types are less cooperative with the least cooperative patterns existing against the pattern types of Repressive and Uncertain/Aggressive (Brekelmans, Wubbels & den Brok, 2002).

Brekelmans, Levy and Rodriguez (1993) observed that teachers identified as Tolerant and Authoritative maintain a classroom environment which supports student responsibility and freedom, as opposed to teachers identified as being Uncertain/Aggressive where their classes were characterised more by an aggressive kind of disorder.

Brekelmans, Levy and Rodriguez (1993) found that Tolerant and Authoritative teachers established a close relationship between teacher/student in which teachers were organised. These teachers also provided a range of teaching methods (including small group work) and provided a classroom environment which was enjoyable and in which students responded well. Laughter was identified as being synonymous with the typology in which a student orientated learning experience required little need for rule enforcement.

Using a cluster analysis, Wubbels, Brekelmans Créton and Hooymayers (1990) and Brekelmans, Levy and Rodriguez (1993) further developed eight typologies of student perception based upon interpersonal behaviour (Figure 2.11). Brekelmans, den Brok, Tartwijk, and Wubbels (2005) provide a summary for each of the eight typologies of student perception based upon interpersonal behaviour.



*Figure 2.11: Eight typologies of student perception based upon interpersonal behaviour*  
Reprinted from “What does the Australian teacher look like? Australian typologies for teacher-student interpersonal behaviour”, by Rickards, den Brok and Fisher, 2003.

In 2005, Rickards, den Brok and Fisher undertook a study using the QTI to examine science teacher typologies generated from student perceptions of teacher-student interpersonal behaviour in Australia. The study concluded that Australian typologies were comparable with earlier studies from the Netherlands and USA. Rickards, den

Brok and Fisher (2005) sought to identify Australian typology of interpersonal teacher behaviour (based on Australian secondary school teachers).

In making a comparison to Brekelmans eight typologies of student perception of teacher behaviour the researchers (Rickards, den Brok & Fisher, 2003) were only able to map four of the seven types; Tolerant-Authoritative (Australian type 1), Authoritative (Australian type 2), Directive (Australian type 4) and Uncertain-Aggressive (Australian type 7). The remaining three types required further analysis with the Australian type 3 being labelled Directive-Authoritative, the Australian type 6 labelled as Flexible, and Australian type 5 labelled as Cooperative (or supportive). The researchers concluded that the existing typology only partially applies to the Australian context which reflected a lower presence of uncertainty in Australian teachers' behaviour.

Rickards, den Brok and Fisher (2005) concluded that typologies can be used as a feedback tool for teachers on a personal level or to be used between peers for comparison, wherein an instant picture of teaching against typology groups makes for a practical and suitable tool for teacher self-reflection.

## **2.14 Chapter summary**

This literature chapter has described the complex Australian international education environment in which the Australian based international pathway learning environment used within the study exists. The literature suggests that minimal research has been undertaken to investigate the Australian based international pathway learning environment.

With respect to the wide range of literature presented on learning environment research in this study, it is interesting to note that throughout this literature review very little evidence exists to suggest that studies have been conducted with an aim to investigate the perceptions of students of within the Australian based international pathway environment. This would suggest that this study is one of the first of its kind to investigate the perceptions of teacher-student interpersonal behaviour of students within the Australian based international pathway learning environment.

Throughout the literature review it has been suggested that student's perceptions of teacher-student interactions, within a range of varying learning environments, has been influenced by variables such as language, culture, sex and age. This study will seek to investigate these associations as they apply to the Australian based international pathway learning environment.

Chapter two has also discussed the history and development of learning environment research and has focused on the development of the QTI. This chapter has also reported on studies using the QTI to examine student perceptions of teacher interpersonal behaviour and their learning environment. Building on this previous research, this study will aim to contribute information on the Australian based international pathway learning environment. This study is unique in that it will contribute information on learning environment research based within a previously poorly represented group, namely Australian based international pathway students.

Chapter three will now present the research methodology used in this study.

## Chapter Three

### Research Methodology

طلب العلم من المهد إلى اللحد

“Seek knowledge from Cradle to Grave”

(Arabic proverb: English Translation)

#### 3.1 Introduction

Chapter three will present the methodology used within this study. This chapter will consider the theoretical framework from which this study has evolved. It will continue by present the selected learning instrument and explore the validity and reliability results of similar research using the selected instrument.

The initial stages of the research design and planning process will set the scene for the presentation of the research questions which draw upon the auto ethnographic account of the researcher’s experiences described in chapter one, and literature presented in chapter two. The chapter concludes by systematically presenting the stages of the research process which will be used to present qualitative and quantitative data in chapters four and five.

As the study is one of the first of its kind to examine Australian based international pathway learning environments, there was no one instrument defined to examine this particular learning environment. It is therefore imperative to reflect upon the theoretical framework for this study, the unit of analysis and the literature discussed in chapter two to select the learning environment instrument for this study.

#### 3.2 The theoretical framework of this study

There are three theoretical frameworks from which the methodology for this research is derived.

Firstly, the area of learning environment research will form a basis for this study. Chapter two identified that during the design of learning environment research there

is a need to decide if the study will analyse the individual (private press) or combined (consensual press) average of a class (Fraser, 1998a). The concept of the individual as the unit of analysis will be a key focus for the learning environment aspects of this study.

Secondly, data will be collected via the subjective student perception of teacher-student interpersonal behaviour within the Australian based international pathway learning environment rather than objective observation by the researcher as suggested by Fraser and Walberg (1991).

Thirdly, the systems approach to communication (Watzlawick, Beavin & Jackson 1967) and the general model for interpersonal relationships design by Leary (1957), and subsequent develop of the model for interpersonal teacher behaviour (Wubbels, Créton, & Hooymayers, 1985) provides the theoretical underpinnings to this study.

### **3.3 Sample population and Unit of Analysis**

This study seeks to focus on the individual as the unit of analysis due to the idiosyncratic nature of the Australian based international pathway learning environment.

The Australian based international pathway learning environment has a distinctive, and at times complex and dynamic student population. Students within the Australian based international pathway environment were observed as being from a wide variety of cultural backgrounds, with a majority of students within the Australian based international pathway environment in Australia appearing to be an international student. This proportion appeared different when observing the Australian based international pathway environment offshore, where a higher majority of students were local (domestic) to the country that the college was situated.

The researcher observed though an embedded experience within the Australian based international pathway learning environment that the student population within each class varied greatly based upon a number of classroom level and institutional level variables such as infrastructure and resource availability. Focussing upon classroom

level variables it was also observed that students did not remain within classroom level cohorts. Each classroom appeared to have a continually changing composition, and these continual changes were influenced by a number of variables which are discussed below.

Students within the Australian based international pathway environment were observed as being enrolled in one course, in which that course consisted of multiple units, of which some of these units were shared across courses. Each unit could be delivered once, or more than once per week. Students were observed as being able to select their preferred unit from a planner, rather than being placed into classroom groups. The result of each student selecting their own unique combination of units each semester meant that no one classroom consisted of the same group of students. From a student's perspective the outcome was that they could have four or five different classes per semester, with a different teacher in each class, with a varying group of students in each class.

The population of students in each class was observed as being influenced by the popularity of courses. In one particular international pathway college the researcher observed that design classes typically had a headcount of six or less students, whilst some business classes had class sizes of up to fifty students. The researcher also observed similar classroom patterns over a period of time at the same Australian based international pathway college in Australia, and different classroom patterns during a lived experience in an Australian based international pathway college in Kenya.

The researcher also observed a statistics classes within the Australian based international pathway learning environment which consisted of only twelve students, while another lecturer who had another scheduled class of statistics students within the same semester of up to thirty five students.

As a teacher within the Australian based international pathway learning environment, the researcher also experienced and noted other unique aspects of the international pathway learning environment. Even within each individual scheduled class subject, students were observed as being able to attend other scheduled classes of the same

subject, which meant that at times there was a varying student dynamics in each unique classroom from week to week.

It was also noted that period of exposure to the Australian based international pathway learning environment was different for each student. This was especially prevalent in shared classes where one student may be completing a common unit to finish a qualification, while another student may be completing the unit in their first semester of enrolment.

The period of time a student spent within the Australian based international pathway environment was also observed as being influenced by their academic performance. Most students were observed to be at the Australian based international pathway college for one to two years, however small groups of students with poor academic performance appeared to take a longer time to complete their qualification, and therefore appeared to spend more time within the learning environment.

The researcher also observed that the combination of these factors resulted in a variety of cultural, linguistic, age and sex composition within each class.

Through researcher experience within the Australian based international pathway learning environment it was anecdotally suggested that new students typically had a one semester acclimatisation period, in which within this period students adapted to the new learning environment and become accustomed to a foreign country.

The effect of these dynamics created an environment in which students did not necessarily remain in class groups but rather a dynamic environment is created where each class has varying student population combination and numbers and in which a particular class may have a unique mixture of students based upon other variables such as culture and language.

The variable of subject used within this study was a possible variable to analyse the sample at a classroom level. However, large discrepancies were recorded in this study indicated by the varying grouped sample size based upon subject. The data reported within this thesis supports the researcher's observations relating to the

unbalanced class sizes, and also reflects this studies difficulty to formulate data that can be effectively be used for eta squared ( $\eta^2$ ) analysis.

Keppel (1982) and Levin (1967) highlight that the use of eta squared has several misleading properties where the eta squared value can be artificially inflated when there is an extreme group in a sample. Keppel, Cohen and Cohen (as cited in Bleise and Halverson, 1998) report that eta squared is biased by factors such as sample size and the number of predictors. Bleise and Halverson (1998) advise that the magnitude of error in eta squared is directly related to the size of the groups on which it is calculated.

When discussing ANOVA's Sawyer (2009) states that a grouped sample size should be greater than 30 so as to invoke the central limit theorem and there should be a balanced design to establish grouped sample sizes. When making assumptions regarding one-way ANOVA's Weaver (2006) suggests caution in relation to statistical analysis involving heterogeneity of variance which uses sample sizes or unequal proportion.

This study has therefore used the individual and not the classroom as the unit of analysis, and does not provide grouped information towards the analysis of intra-class differentiation using  $\eta^2$ , as no one classroom maintains the same student population.

In identifying the student audience it is understood that the discrepancy between private and consensual press must be incorporated into classroom environment research to ensure the integrity and significance testing of the data to be gathered. Data will therefore be collected via private press (perception of scores obtained by individual students) and, assessed as a combined average of the environment of all the students (consensual press) to get an overall statistical analysis of student's perceptions of teacher-student interpersonal behaviour within the international pathway learning environment.

### 3.4 Research design

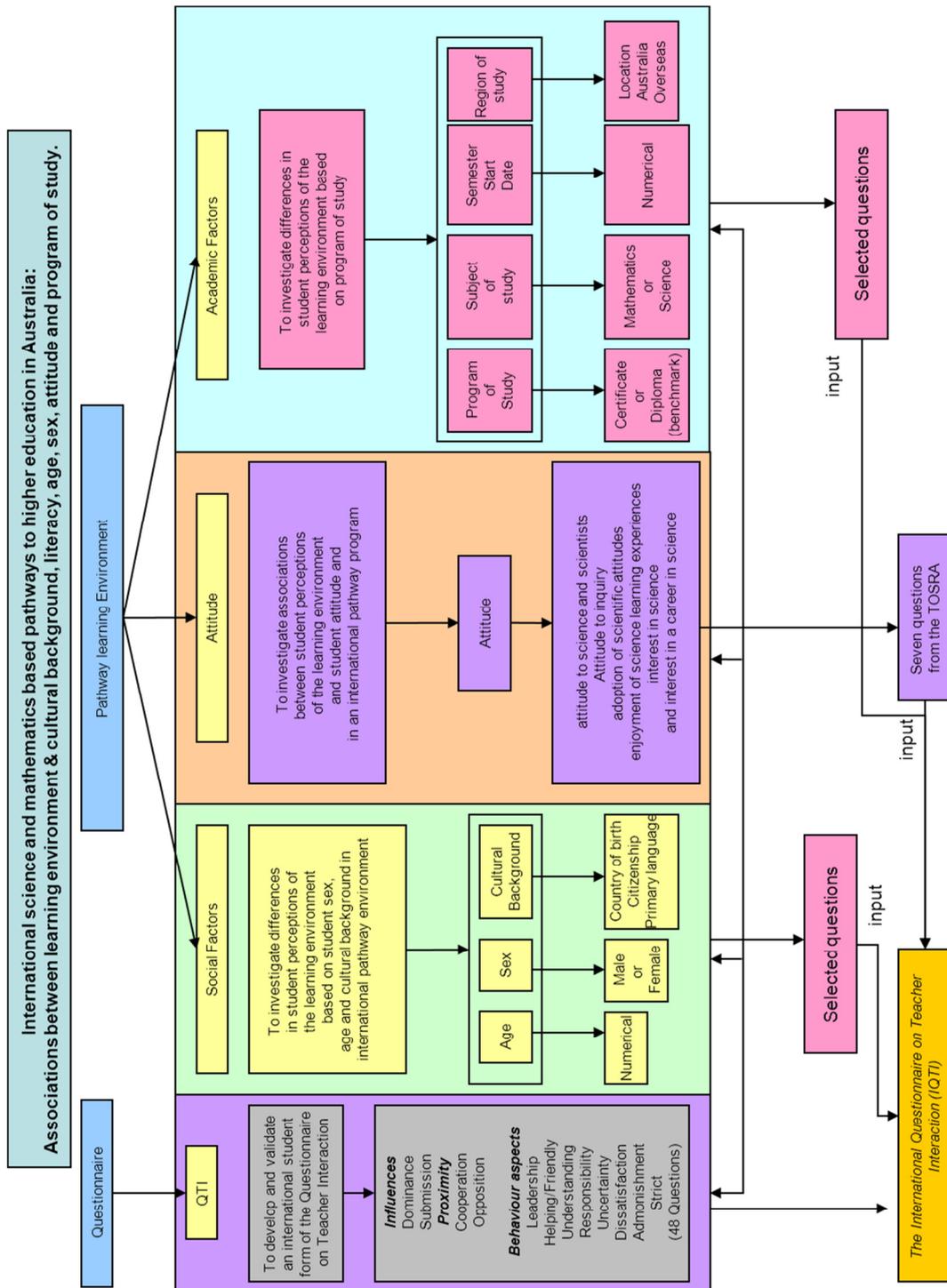


Figure 3.1: Design of the IQTI instrument

In formulating the methodology for this study, the researcher generated Figure 3.1 to provide structure and clarity to the study.

The researcher's lived and worked experience and knowledge of the student population group defined some of the variables which may influence students within the Australian based international pathway learning environment, identifying Cultural Background, Age, Sex, Program of Study and Attitude.

Being guided by theory, on reflection of the relevant literature, and based on auto-ethnographic account within the Australian based international pathway learning environment the research questions were proposed.

### **3.5 Research Questions**

This section of chapter three will now refine the research objectives (presented in section 1.6) into a set of research questions, which will define the structure of this study.

Validity or reliability data does not exist relating to student perceptions of teacher-student interpersonal behaviour from within the Australian based international pathway environment. Therefore the first research question was created:

#### *Research Question One*

Is the IQTI used in this study a reliable and valid tool for the use within the Australian based international pathway environment?

Chapter two highlighted that Primary Language may be associated with student perceptions of teacher-student interpersonal behaviour (Koul & Fisher, 2005). Within the Australian based international pathway environment each student's Primary Language may vary, and therefore research question two was generated:

#### *Research Question Two*

What associations exist between student perceptions of the Australian based international pathway learning environment and Primary Language?

The principle that underlies research question three is developed based on literature presenting research based on cultural background (Levy, Wubbels, Brekelmans & Morganfield, 1994), and from personal experience that the Australian based international pathway environment is multicultural, and that the interactions and communications within the Australian based international pathway environment may be culturally influenced.

*Research Question Three*

What associations exist between student perceptions of the Australian based international pathway learning environment and student cultural background?

In the previous two chapters, literature has indicated that student perceptions of the teacher-student interpersonal behaviour within the learning environment may exist based upon student sex (Lewin, 2006; Rickards, 1998). Research question four is a result of these previous research findings:

*Research Question Four*

What associations exist between student perceptions of the Australian based international pathway learning environment and student sex?

Research question five originates from the researcher observation that typical Australian based international pathway education environments comprise of students from a broad range of age groups. Through lived experience, the researcher observed that older students appeared to display a more mature approach to their education than their younger counterparts. Observations in previous research (Levy, Wubbels, Brekelmans & Morganfield, 1997) have indicated that older students perceive their teachers as more dominant. Research question five is a result of these researcher observations and previous research findings:

*Research Question Five*

What associations exist between student perceptions of the Australian based international pathway learning environment

and student age?

The Program of Study within the Australian based international pathway environment may be influence by a range of factors. These include the Region of Study (location), the Level of Study, the Subject and the time spent studying within the Australian based international pathway environment. Given these factors four research questions were based upon Program of Study; research question six, seven, eight and nine. Research question six reflected the location of study:

*Research Question Six*

What associations are there between student perceptions of the Australian based international pathway learning environment and their location?

Given that students within the Australian based international pathway education environment are studying any number of courses offered within pathway education environment, research question seven evolved to examine associations in student perception of teacher-student interpersonal behaviour and level of study.

*Research Question Seven*

What associations are there between student perceptions of the Australian based international pathway learning environment and their Level of Study?

Students within the Australian based international pathway education environment study a range of subjects within their Program of Study. Previous research (Fraser, 2002; Telli, Cakiroglu and den Brok, 2006) indicates that subject matter may be an influence within the learning environment. Research question eight reflects upon literature and seeks to examine associations of student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment and Subject.

*Research Question Eight*

What associations are there between student perceptions of the

Australian based international pathway learning environment and subject?

Another factor evident to the researcher was that within the Australian based pathway education environment students experienced the pathway learning environment for varying periods of time based upon the pathway course they selected and academic progress. Anecdotally the researcher recorded that an acclimatisation period may exist when new students experienced the international pathway learning environment. Research question nine has evolved to examine associations of student perceptions of teacher-student interpersonal behaviour and period of time within the Australian based international pathway environment.

*Research Question Nine*

What associations are there between student perceptions of the Australian based international pathway learning environment and Study Period?

As indicated in the literature review, associations have been suggested to exist between teacher-student interpersonal behaviour within a number of learning environments including student attitude (Fisher, den Brok, Rickards, 2006; Reid, 2007). Attitude and enjoyment within an educational environment has been correlated to student outcomes (den Brok, Brekelmans & Mainhard, 2010; den Brok, Brekelmans, & Wubbels, 2004), and therefore could be another variable to investigate the international pathway environment, and for this reason research question ten has been generated.

*Research Question Ten*

What associations are there between student perceptions of the Australian based international pathway learning environment and attitude?

Finally research question eleven focuses on the reflective nature of education, and seeks to examine if information within this research can be used by teachers within

the Australian based international pathway education to reflect on teacher-student interactions.

*Research Question Eleven*

Can the IQTI provide suitable information for the purposes of Australian based international pathway institutions to reflect on learning environments?

With the above eleven research questions established, a suitable research instrument could be developed in which the methodology used to undertake this study was then considered.

### **3.6 Instrument selection**

The QTI was one of many learning environment tools which measure these teacher student interactions and behaviours.

The tool selected for this study needed to have validation data from a global perspective including learning environments which had non-English speaking students. The QTI has been successfully used in a variety of foreign learning environments (Brok, Wubbels & Brekelmans, 2003; Coll, Taylor & Ali, 2001; Khine & Lourdasamy, 2005; Levy, den; Scott & Fisher 2001; 2003; Telli, den Brok & Cakiroglu, 2006) and with students for whom English is a foreign language (den Brok, Brekelmans & Wubbels, 2004; Wei, den Brok & Zhou, 2009). The QTI was selected as it is able to provide validation from this global perspective.

The QTI also has an added advantage that it has been suggested as an appropriate tool for teacher professional development (Khine and Lourdasamy, 2005), which reflects one of the desired research outcomes of this study.

This study utilises English as the primary language in an environment where the majority of students have been observed by the researcher as having English as a Second Language (ESL) and/or of varying English competence. The tool therefore needed to be simple to complete and allow grouping of items. The nature of the QTI

provides items that have been easily simplified into versions that suit the audience (Goh & Fraser, 1996; Khine, Larwood & Fisher, 2000; Scott & Fisher 2001; 2003).

In reviewing literature from previous studies in learning environment research, discussions with supervisors and based upon the objectives and research questions, the QTI was nominated as the primary basis for the development of a survey tool for use within this study.

This study seeks to develop a modified version of the QTI for use within the Australian based international pathway learning environments. The final tool used in this study to collect quantitative data has been termed the *International Questionnaire on Teacher Interaction* (IQTI) which consisted of three parts.

The first part of the survey instrument consists of nine questions to elicit information from students regarding their Cultural Background, Age, Sex and Program of Study. The second part of the survey instrument consisted of a modified version of the 48-item short form of the Australian version of the QTI, and the third part of the survey instrument consists of the seven item ‘*attitude to class*’ scale based on the *Test of Science Related Attitudes* (TOSRA). The attitude scale items remained unchanged from those items used in previous studies (Henderson, Fisher & Fraser, 1995; Rickards, 1998). Collectively this new tool enables the researcher to collect quantitative data from the selected student population to inform the respective research questions.

In making the decision to use the QTI within this study it was necessary to review the validity and reliability data collected in previous research to better inform this study and determine the efficacy of the QTI.

### **3.7 Validity and Reliability of the QTI**

The QTI has been shown to be a valid and reliable instrument in previous research. Validity and reliability information has been derived from research conducted around the world including the Netherlands (Wubbels, Brekelmans & Hooymayers, 1993), the USA (Wubbels & Levy, 1991; 1993), Australia (Fisher, den Brok & Rickards,

2006), Singapore (Khine & Lourdasamy, 2005, Lourdasamy & Khine, 2001), and Brunei Darussalam (Khine & Fisher, 2003).

Cronbach's alpha reliability coefficient, a measure of internal consistency, normally ranges between 0 and 1 (Cronbach, 1951). The size of the alpha value is determined by both the number of items in the scale and the mean inter-item correlations.

George and Mallery (2003) provides the following rules of thumb for alpha values of greater than 0.9 being 'Excellent', greater than .8 being 'Good', greater than 0.7 being 'Acceptable', greater than 0.6 being 'Questionable', >greater than 0.5 being 'Poor', and less than 0.5 being 'Unacceptable'.

Gliem and Gliem (2003) suggest that the alpha reliability coefficient is partially dependent upon the number of items in the scale in which a value of 0.8 is probably a reasonable goal. A high alpha value may provide evidence of good internal consistency but does not necessarily indicate that the scale is one-dimensional. An alpha reliability coefficient value of above 0.60 has been suggested (Nunnally, 1967: 1978) as an acceptable level of research purposes. Intra-class correlation studies (Wubbels, Créton, Brekelmans & Hooymayers, 1991; Wubbels & Levy, 1991:1993) have generally found levels above 0.80 for each scale.

### ***Internal consistency of the QTI***

Table 3.1 on the next page provides a summarised set of alpha reliability scores for a number of studies using the QTI. Khine and Lourdasamy (2006) commented that each QTI scale displays satisfactory internal consistency.

For the purposes of this study, it is important to consider that the alpha reliability scores from student data from previous research has typically ranged from 0.76 – 0.93 for the Leadership scale, 0.83 – 0.96 for the Helping/Friendly scale, 0.76 - 0.95 for the Understanding scale, 0.50 – 0.82 for the Student Responsibility/Freedom scale, 0.70 – 0.87 for the Uncertain scale, 0.77 – 0.93 for the Dissatisfied scale, 0.80 – 0.87 for the Admonishing scale and 0.49 - 0.80 for the Strict scale.

*Table 3.1: Internal consistency of QTI Scales for Teacher and Student in Various Contexts.*

Scale	Teacher/ Student	The Nether- lands* (a)	USA * (b)	Australia ** (c)	Singapore * (d)	Brunei * (e)	Australia ** (f)
Leadership	Teacher	0.80	0.75	0.74	0.74	-	0.82
	Student	0.83	0.80	0.83	0.80	0.76	0.93
Helping/ Friendly	Teacher	0.78	0.74	0.82	0.60	-	0.88
	Student	0.90	0.88	0.85	0.84	0.83	0.96
Understanding	Teacher	0.83	0.76	0.78	0.74	-	0.85
	Student	0.90	0.88	0.82	0.84	0.76	0.95
Student Responsibility/ Freedom	Teacher	0.72	0.82	0.60	0.61	-	0.66
	Student	0.74	0.76	0.68	0.73	0.50	0.82
Uncertain	Teacher	0.83	0.79	0.78	0.71	-	0.72
	Student	0.79	0.79	0.78	0.84	0.70	0.87
Dissatisfaction	Teacher	0.83	0.75	0.62	0.75	-	0.80
	Student	0.86	0.83	0.78	0.87	0.77	0.93
Admonishing	Teacher	0.71	0.81	0.67	0.73	-	0.76
	Student	0.81	0.84	0.80	0.81	0.88	0.87
Strict	Teacher	0.61	0.84	0.78	0.66	-	0.63
	Student	0.78	0.80	0.72	0.71	0.49	0.78
Sample Size	Teachers	66	66	46	25	-	191
	Students	1105	1606	792	994	1188	~4000

\* Original 77-item version of the QTI

\*\* Economical 48-item version of the QTI

(a,b,c,d and e) Adapted from Khine &amp; Lourdasamy, 2006.

(f) Adapted from Fisher, den Brok &amp; Rickards, 2006.

***Inter-scale Correlation for the QTI***

Chapter two provided an overview of the circumplex nature of the model for interpersonal behaviour (Wubbels, Brekelmans and Hooymayers, 1991). The model assumes that adjacent scales are correlated more closely than those scales opposite.

Moving away (circular movement) from one scale the correlation will decrease, with opposite scales with the most negative correlation. Continuing this movement, the correlation will increase towards the original scale (Wubbels, Créton, Levy & Hooymayers, 1993).

This section will now investigate the statistics that support the correlation of scales within the circumplex model.

Table 3.2: Interscale correlation for the QTI

Scale	Unit of Analysis	DC	CD	CS	SC	SO	OS	OD	DO
<b>Leadership (DC)</b>	Student	1.00	0.61	0.50	-0.12	-0.72	-0.48	-0.33	0.02
	Teacher	1.00	0.48	0.35	-0.41	-0.72	-0.40	-0.17	0.34
<b>Help/Friendly(CD)</b>	Student		1.00	0.86	0.38	-0.34	-0.68	-0.60	-0.42
	Teacher		1.00	0.76	0.09	-0.37	-0.47	-0.44	-0.19
<b>Understanding (CS)</b>	Student			1.00	0.44	-0.23	-0.69	-0.63	-0.49
	Teacher			1.00	0.30	-0.15	-0.45	-0.57	-0.29
<b>Student Resp/ Freedom (SC)</b>	Student				1.00	0.34	-0.24	-0.33	-0.48
	Teacher				1.00	0.52	-0.08	-0.40	-0.64
<b>Uncertain (SO)</b>	Student					1.00	0.44	0.29	-0.03
	Teacher					1.00	0.49	0.15	-0.19
<b>Dissatisfied (OS)</b>	Student						1.00	0.76	0.53
	Teacher						1.00	0.60	0.44
<b>Admonishing(OD)</b>	Student							1.00	0.58
	Teacher							1.00	0.54
<b>Strict (DO)</b>	Student								1.00
	Teacher								1.00

Reprinted from “Discipline problems of beginning teachers, interactional teacher behaviour mapped out”, by Wubbels, T., Crèton, H., & Hooymayers, H., 1985.

Using the teacher data from Table 3.2 provided above, a diagrammatical representation has been generated (Figure 3.2) using the model for interpersonal teacher behaviour (Fisher, Fraser, & Wubbels, 1993).

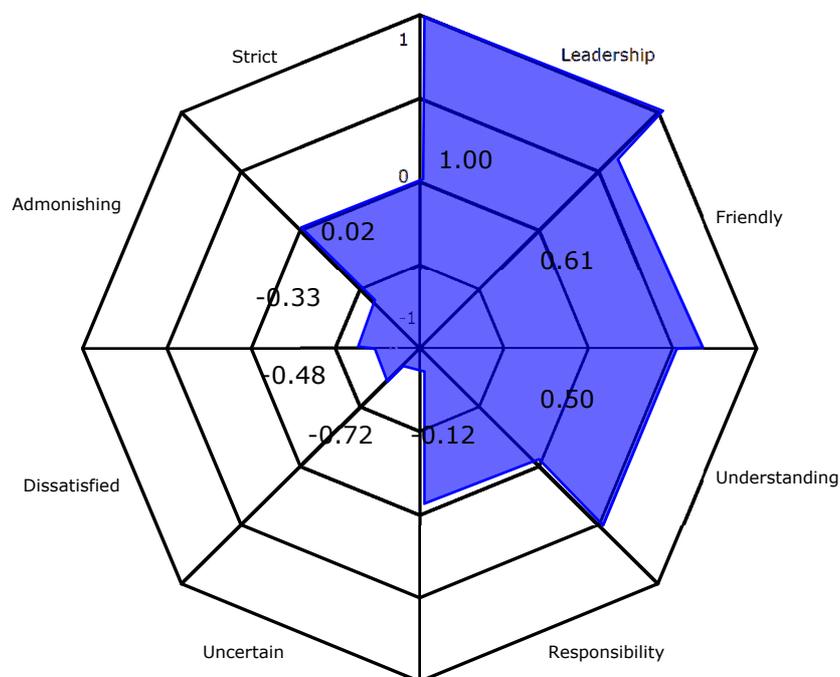


Figure 3.2: Model for interpersonal behaviour based upon leadership correlation data

Adapted from “Discipline problems of beginning teachers, interactional teacher behaviour mapped out”, by Wubbels, T., Crèton, H., & Hooymayers, H., 1985.

Table 3.2 (Wubbels, T., Crèton, H., & Hooymayers, H., 1985) and Figure 3.2, on the previous page, demonstrates the pattern of correlation between the scales, using a single scale (Leadership) as a reference scale to plot the correlations of adjacent and opposite scales.

***Associations based upon the unit of analysis for the QTI***

Previous research has utilised the Horst (1949) general coefficient, the ANOVA  $\eta^2$  statistic, to differentiate between classes.

*Table 3.3: Classroom differentiation using  $\eta^2$*

Scale	$\eta^2$			
	USA (a)	Australia (b)	Netherlands (c)	Australia (d)
Leadership	0.41*	0.48**	0.59*	0.29**
Helping/Friendly	0.22*	0.33**	0.48*	0.31**
Understanding	0.28*	0.29**	0.43*	0.26**
Student Freedom/ Responsibility	0.29*	0.28**	0.36*	0.26**
Uncertain	0.38*	0.38**	0.59*	0.21**
Dissatisfied	0.19*	0.20**	0.39*	0.16**
Admonishing	0.25*	0.25**	0.39*	0.25**
Strict	0.43*	0.30**	0.45*	0.24**
N	1,606	489	1,105	3,215

\* $p < 0.01$ , \*\* $p < 0.001$

(a and c) Adapted from Wubbels and Levy, 1991

(b) Adapted from Henderson, Fisher and Fraser, 1995

(d) Adapted from Rickards, 1998

As indicated in the studies summarised in Table 3.3 above, previous studies using the QTI have displayed that variance, or intra-class differentiation, can be differentiated significantly between the perceptions of students in different classrooms.

As earlier described in this chapter and in chapter one, the Australian based international pathway learning environment consists of a dynamic student population which changes within each class and varies greatly based upon cultural background variables such as ethnicity and language. Each classroom may also consist of students of varying ages and gender ratios. Students within each class may be studying a subject towards a different qualification or outcome requirement. Each subject may have more than one teacher over multiple teaching sessions per week. These dynamics create a complex environment in which categorising or grouping based on classroom would be inappropriate.

This section of the thesis has provided data analysis from previous studies using the QTI. This review of reliability and validity information from studies using the QTI provided guidance and a reference point to guide the research methodology.

### **3.8 Research Methodology**

This study involved the collection and reporting of qualitative and quantitative data from a sample population of students within the Australian based international pathway learning environment.

Ethics approval was granted by Curtin University of Technology, Office of Research and Development to undertake this research. The researcher submitted a formal written request to conduct research on the worldwide group of colleges. Research was granted by the Executive General Manager on behalf of all the colleges. In appreciation of the college participation, a final copy of this thesis will be presented to the Executive General Manager and CEO of the college group. An email was also sent to all key staff at participating colleges, and students who left email address that the final thesis will be made available through the college group and/or via digital thesis on the Curtin University of Technology Library Information System.

This study required the development of a learning instrument tool which was capable of collecting quantitative data from students within the Australian based international pathway learning environment. The *Questionnaire on Teacher Interaction* (QTI) was selected as the appropriate tool. To meet the requirements of the target audience, and to provide data towards informing the research questions, a modified version of the QTI tool was developed as part of the research methodology.

The staged collection and analysis of qualitative and quantitative data will be used to structure the presentation of the research method and survey design for this study. Qualitative and Quantitative data was collected and analysed in three phases as demonstrated in Table 3.4 on the following page.

Phase One involved a pilot study which collected student qualitative data (Stage I) which informed the development and design of modified behavioural scale items of

the QTI. The collection of quantitative student data (Stage II) using the modified behavioural scale items of the QTI contributed towards the generation of validity and reliability information for comparison to previous research. This also provided confidence in using the modified QTI behavioural scale items within the main study using the IQTI tool.

*Table 3.4: Methodology overview*

Phase	Stage	Description
Phase I Pilot Study	I	Qualitative data collection and analysis to develop modified QTI behavioural scale items
	II	Quantitative data collection and analysis using modified behavioural scale items
Phase II Main study	III	Qualitative data collection and analysis
	IV	Quantitative data collection and analysis
Phase III Variable analysis	V	Quantitative data analysis
	VI	Qualitative data collection and analysis

Phase Two, collectively referred to as the main study, comprised of the collection of qualitative student data based upon each of the QTI behavioural scales (Stage III), and collection of quantitative student data using the *International Questionnaire on Teacher Interaction - IQTI* (Stage IV). Qualitative and quantitative data based upon the ‘attitude to class’ scale derived from the TOSRA is also reported as a component of phase two. The triangulation of qualitative and quantitative data when compared to each other and to previous research, informs the construct validity for the IQTI tool.

Phase Three referred to as the variable analysis, involved the analysis (Stage V) of quantitative student responses to the modified behavioural scale items of the QTI, based upon the grouping of the nine introductory questions of the IQTI tool. Further qualitative data from students (Stage VI) was also sought to explain some the outcomes of the quantitative analysis based upon the groupings.

An auto ethnographic account of the researcher as a participant observer is included throughout this thesis. The researcher, being embedded within the Australian based international pathway learning environment located in Australia or offshore, provides further point of qualitative data collection to support the context and findings of the

study.

The next section of the chapter will, in chronological order, describe the research methodology using the staged approach described above.

### **3.8.1 Stage I - Qualitative data collection – pilot study**

The 48-item short form of the Australian version of the QTI was used during the qualitative data component of the pilot study (Appendix B and C). The aim was to collect qualitative student data on the existing QTI tool, and where necessary, to modify the items of the QTI into a form that was mutually recognisable, understood and equally interpreted by all participants.

The collection of qualitative data during the pilot study was completed using a single Australian based international pathway college in Australia. This qualitative data was collected from students using the 48 item short form of the Australian version of the QTI.

On prior arrangement, the researcher was given approval to enter the Australian based international pathway college and interview students during class time. The college selected a computing class in which the teachers had given permission for the researcher's to enter. The teacher had also notified students of the researcher's intent to interview them based upon a teacher-student interaction tool.

Prior to the pilot study, students were made aware in advance of the upcoming interviews. Students were notified that if they did not wish to participate, that they should leave the room and return at a later time. Student consent to participate in the pilot study was indicated by their participation.

The computing class was selected as it presented a representative cross sample of the student population in respect to culture, language, age and sex. The researcher's entered and worked with 27 students over a one hour interview session splitting the students up into two working groups.

This process required interviews in which the researcher requested students to submit their comments on their interpretations, perceptions or feelings towards the items of the 48-item short version of the Australian version of the QTI.

Students within one group were given the items of the positive QTI behavioural scales, while the other group were provided with the negative QTI behavioural scales. Each group was required to make written comments about each of the items. Students were given the opportunity to talk to other students of the group, and also seek further advice from the researcher. The researcher then requested students to feedback to the researcher in a group environment.

The research called each item to the group and asked for student comments. Each student was given the opportunity to comment on each item, and time was also given to elaborate on more complex items. This activity took approximately 30-45 minutes. Student feedback was collected and recorded into a final Excel spreadsheet.

Of interest to note was that students did not respond negatively to the five point Likert type response system. The response system was closely monitored for any weaknesses or inconsistencies. Researcher's observation and students' feedback suggests that students have completed similar questionnaires in their primary language and/or English, and were therefore accustomed to a Likert-type response mechanism.

It was noted during the interviews that many students utilised electronic dictionaries/thesaurus to translate English words into their primary language, and then reinterpret these words back to English. For this reason many students gave one or two word synonyms as answers to demonstrate their understanding. Students were also advised to place brackets around words of interest or concern from within the behavioural scale items. These words were then discussed by students with the researcher and noted by the researcher as either being words of interest or concern.

The interview process highlighted the repetitive nature of the QTI items which would assist in the development of a simplified version of the QTI behavioural scale items.

The researcher, with supervisor assistance, reflected upon previous research and student feedback to construct simplified sets of QTI items. As such the modified behavioural scale items of the Australian version of the QTI was developed using the following principles:

- To create a tool which is modified for efficiency by grouping behavioural scale items together and reducing the item text length through the use of a common precursor text, and
- To create a tool which is simplified to the target audience through students' feedback to ensure the items are culturally appropriate, language appropriate and non-discriminatory.

As a result, the six items of each scale were combined with a single statement commencing with 'this teacher' with each item not exceeding more than ten words. An example of the revised six items of the Helping/Friendly scale is given below:

*This teacher;*

- *Helps us with our work*
- *Is friendly to us*
- *Is someone we can depend on*
- *Has a sense of humour*
- *Has fun with us*
- *Is Pleasant to us*

The qualitative data collected from the development of the modified QTI behavioural scale items will be presented in chapter four. This approach has been taken as the qualitative student data collected during this pilot study is used to inform the construct validity of the IQTI tool used within this study.

### **3.8.2 Stage II - Quantitative data collection – pilot study**

The second stage of the pilot study involved collecting quantitative data from students within the Australian based international pathway environment to verify the modified QTI behavioural scale items against the quantitative outcomes from previous research.

Quantitative data was collected from students during the pilot study using the modified QTI behavioural scale items. A pen and paper survey (Appendix C) method was deployed.

Quantitative data collected in Stage II of the pilot study represents the responses from 164 students studying within Australian based international pathway colleges from four (4) locations of Kenya, Canada, Australia and Sri Lanka.

Data recorded on each survey tool was transcribed into an Excel spreadsheet. Damaged or significantly incomplete questionnaires were not transcribed to the spread sheet whilst those questionnaires with small amounts of missing data were recorded. In transcribing the data onto the Excel spreadsheet, each hard copy questionnaire was allocated a unique code. Random sampling and checking was conducted to verify the accuracy of the data entry. Data was formatted in an appropriate manner to be entered into statistical software, namely SPSS (IBM, 2011) to test for reliability and validity.

These results are presented in chapter four and are compared to previous research using the QTI. This approach has been taken as the quantitative data collected during this pilot study is used to inform the construct validity of the IQTI tool used within this study.

The modified QTI behavioural scales developed (Stage I) and tested (Stage II) forms one of the three components of the IQTI tool used within the main quantitative component of this study (Stage IV). The next section of this chapter will now describe the selection of the nine introductory questions and attitude scale of the IQTI.

### **3.8.3 Development of nine variables**

The IQTI developed in this study, consists of three components in which the first component includes nine introductory questions. These nine questions consist of three items on Cultural Background, two items on Age and Sex, and four items

regarding Program of Study.

These questions evolved from the following circumstances:

- Researcher experience as a participant observer within the Australian based international pathway learning environment located in Australia or offshore
- Researcher knowledge of the target audience developed as a result of being embedded in the selected learning environment
- Previous research investigated in literature (refer to chapter two)
- Research questions (refer to section 3.5)
- Supervisorial advice

An important development was the structuring and grouping of student responses against the nine questions. As many variables existed within the flexible response system, it was necessary to group responses into categories which represented the target population, but also generated groupings suitable to undertake statistical analysis against each variable.

#### ***Cultural Background Variables***

Vesna (2010) refers to a person may claim to be part of a culture based upon nationality, ethnic, language, religion and other origin. As culture is a complex variable in itself, responses to cultural background were limited to Primary Language, Country of Birth and Country of Citizenship.

Using geopolitical definitions (such as continents and country borders) three cultural background variables were created of Primary Language, Country of Birth and Country of Citizenship to define cultural background factors within this study.

After initial investigation into the data set, it was observation that a majority of student responses against cultural background questions originated from or related to the Asian continent. Therefore the researcher provided further groupings within the Asia region for all three items. These groupings were based on geographical and

continental features as well as researcher experience with the particular study population.

### ***Primary Language***

A number of terms were debated when constructing this study to define language. Researcher lived experience determined that many students within the Australian based international pathway learning environment were able to speak a number of languages. For example, when the researcher was working in Kenya it was observed that almost all students were able to speak up to two regional languages of their parent/s, plus Swahili and English. English and Swahili are the official language of Kenya with most social conversations conducted in the language of Swahili, however when people returned to their home village they tended to converse in the language/s of their parent/s which typically was not Swahili or English.

The first term considered was ‘mother tongue’ however it was surmised that this could be interpreted by respondents by its literal term of paternity, or see the term as a reflection of origin. ‘First language’ was another term which could of been used however this could be understood by the respondent to mean the first language that an individual was exposed to or used during infancy or childhood, whereas a majority of the time they actually speak another language. ‘Native’ in reference to ‘native tongue’, brings about connotations regarding land and country, and may be interpreted by respondents to identify the language of their birth region or country or the language used (or once used) by their parents.

In using the term Primary Language, the study allows for the variability that more than one language may have been, or still is, spoken at home. The study wishes to seek the predominant language, or the language that the respondent most closely associates or identifies with.

It was therefore determined that the term Primary Language was selected over other language references such as ‘mother tongue’, ‘first language’ or ‘native tongue’, and as a result Item 1 was generated:

*Item 1: What is your Primary Language spoken at home?*

The variable of Primary Language was categorised into nine groups. The nine groups were derived from the geographical origin of student language and were based on groupings identified in the online Ethnologue (<http://www.ethnologue.com/>). The groups are identified as:

- ‘Arabic’ – Languages of North Africa and the Arabian peninsula
- ‘African’ – sub Sahara African languages
- ‘Asian/China’ – Chinese languages
- ‘Asian/India’- Indian sub-continent languages
- ‘Asian’ – Languages of continental Asia (other than Chinese or Indian) and archipelagos of Southern Asia.
- ‘English’
- ‘European’- European languages other than English and French
- ‘French’ – French including derivatives of French in francophone countries
- ‘Other’ - respondents that did not respond, or responded outside of the groupings above.

In regards to cultural identity a clear distinction could not be made between country or birth and citizenship. Through researcher experience within the Australian based international pathway environment, it was often observed that within the multicultural environment that a student could be born in one country and be a citizen of another country. In addition, a student within this environment may have spent a majority of time in their birth country, and then recently have taken up citizenship of another country, or vice versa.

The study sought to distinguish birth and citizenship as separate items by separating these two notions into Item 2 and 3:

*Item 2: What is your Country of Birth?*

The variable of Country of Birth was placed into ten categories. The ten groups were based upon geographical location (<http://www.mapsofworld.com>), and in some areas sub-divided based upon frequency of student responses. The ten groups were:

- ‘Africa’ - sub Saharan African countries

- ‘Americas’ - North and South America
- ‘Australia/NZ’ – Australia and New Zealand
- ‘Europe’ - Europe
- ‘Asia/India’ – Indian sub-continent
- ‘Asia/China’ – mainland and Hong Kong China
- ‘Southern Asia’ – geographical locations such as Malaysia, Singapore, and Indonesia
- ‘Northern Asia’ – South Korea and Japan,
- ‘Middle East’ – North Africa and the Arabian Peninsula.
- ‘Other’ - respondents that did not respond, or frequency of responses were too few to create their own group, or responded outside of the groupings created above.

*Item 3: What is your Country of Citizenship?*

Country of Citizenship, as with country of origin, was placed into groups using geographical location. Based upon student response frequency this was reduced to nine groups. The nine groups were:

- ‘Africa’ – sub Saharan Africa
- ‘Americas’ – North and South America
- ‘Australia/NZ’ – Australia and New Zealand
- ‘Europe’ - all of the European continent
- ‘Asia/India’ – the Indian sub-continent only
- ‘Asia/China’ – Mainland China and Hong Kong
- ‘Asia/Indonesia’ – the Indonesian archipelago only.
- ‘Middle East’ - North Africa and Arabian peninsula
- ‘Other’ - respondents that did not respond, or frequency of responses were too few to create their own group, or responded outside of the groupings created above.

***Sex and Age Variables***

Responses to personal questions regarding Sex and Age were required from students to provide data to support the studies research questions.

In regards to sex, it is important to make a distinction between gender, maleness and femaleness, and sex (Eagly, 2013; Freedman, 1993). Freedman (1993) suggests that gender (sexual orientation) is only one aspect of a more complex behavioural complex.

Eagly (2013) describes that sex refers to placing humans into one of two categories (male or female) based on biologically caused differences while gender describes differences based on environmentally caused differences which typically related to gender stereotyping.

In relation to previous studies (Rickards, 1998) this study will use the term Sex, rather than 'gender', to define male or female sexuality. This is not a gender study where multiple forms of genders were required to be identified in the research; rather this study seeks to ascertain associations in perceptions of students who identify as either male or female. Therefore Item 4 of the IQTI was created:

*Item 4: What is your sex?*

Based on previous research Sex was categorised into two groups: namely 'male' and 'female'.

In review of the literature in chapter two, it has been identified that age can influence student perceptions (Brekelmans, M., den Brok, P., van Tartwijk, J., & Wubbels, T., 2005; den Brok, Levy, Rodriguez & Wubbels, 2002; den Brok, P., Telli, S., Cakiroglu, J., 2009.; Levy, Wubbels, Brekelmans & Morganfield, 1997) of the teacher-student interactions of the classroom environment. Item five reflects on researcher observations relating to age, and age related observations made in previous studies:

*Item 5: What is your age?*

Through observations made during the researcher lived experience within the international pathway learning environment and observations of trends in the data,

the variable of Age was divided into five groups:

- '15 – 17',
- '18 – 20',
- '21 – 23',
- '24 – 26' and
- '27 - older'.

### ***Pathway environment Variables***

As the QTI, or other classroom learning environment tools, had not previously been used within the Australian based international education pathway sector, the researcher used lived personal experience within the Australian based international pathway learning environment located in Australia or offshore to generate four items regarding the students Program of Study.

*Item 6* allowed the study to locate each students study location, *Item 7* identified the course level the student was enrolled in, and *Item 8* highlighted the subject in which the student was reflecting upon when completing the survey. *Item 9* was included to assess if time exposed to the Australian based international pathway learning environment, not just time within a class, could be associated with changes in student perceptions of the teacher-student interpersonal behaviour within the Australian based international pathway environment.

*Item 6: In which region are you currently studying?*

This study is set within the Australian based international pathway learning environment which may exist within Australia or the Australian owned international pathway learning environment offshore. Given the comparatively low response rate which was received from students from some Australian based international college located in Australia or offshore, the Region of Study was given two groupings:

- 'Australia' – Australian based pathway colleges located within Australia
- 'Other' - Australian based pathway colleges located outside of Australia

*Item 7: Which program are you currently studying?*

Using the researcher's knowledge of the specific Australian based pathway college structures, and on reflection of structured approaches to qualification levels (AQF, 2013), the Level of Study item was grouped into five categories:

- 'Certificate IV'
- 'Diploma'
- 'Advanced Diploma'
- 'Bachelors'
- 'Other'- students that did not respond or whose responses did not fit into one of the categories listed above.

*Item 8: Which type of subject was your last subject?*

Subject was grouped into seven subject categories based upon researcher knowledge of the Australian based international pathway environment and as a reflection of student responses to the quantitative data. Subject was grouped into seven categories:

- 'Business'
- 'Computing'
- 'Science'
- 'Mathematics'
- 'Communications'
- 'Design'
- 'Other' - student responses either did not fit into one of the categories listed above, or did not provide a category.

*Item 9: In which semester did you start study at your pathway provider (college)?*

The final variable of Period of Study describes the number of semesters a student had been enrolled and participated within the Australian based international pathway environment.

From the quantitative data, and from researcher experience, four categories were identified:

- ‘less than one year’ (1 – 3 semesters),
- ‘1 to 2 years’ (4 to 6 semesters),
- ‘2 to 3 years’ (7 to 9 semesters) and
- ‘more than 3 years’ ( more than 9 semesters).

The third and final component of the IQTI was to include a measure of student attitude.

### 3.8.4 Selection of the attitude scale

A range of attitude scales were considered before selecting the seven-item ‘*attitude to class*’ scale developed by Henderson, Fisher & Fraser (1995) and based on the *Test of Science Related Attitudes* (TOSRA).

The multi-dimensional *Q sort technique* (Humphreys, 1975) was considered for this study, however the tool did not provide for an efficient means of data collection. The 30 item (15 reversed scores) *Questionnaire of Chemistry-Related Attitudes* (QOCRA) developed by Wong and Fraser (1994) was again discounted due to its uneconomical nature and inability to integrate with the QTI.

Klopfer (1971) identified six categories of student attitude: attitude to science and scientists, attitude to enquiry, adoption of scientific attitudes, enjoyment of science learning experiences, interest in science and interest in a career in science. Fraser (1978, 1981) later developed the *Test of Science Related Attitudes* (TOSRA) based on these six categories of student attitude.

The TOSRA developed by Fraser (1981) was designed to measure secondary school science students’ attitudes. Based on Klopfer’s (1971) attitude categories, the 70 item TOSRA tool was developed with seven scales; Social Implications of Science, Normality of Scientists, Attitude to Scientific Enquiry, Adoption of Scientific Attitudes, Enjoyment of Science Lessons, Leisure Interest in Science and Career

Interest in Science. Fraser (1981) also used a 5 point Likert type scale (Likert, 1932) of response from 'strongly disagree' to 'strongly agree'.

A study conducted by Schibeci (1982) compared the use of a Semantic Differential technique (response via bipolar adjective pairs) to the Likert response format of the TOSRA. Comparing the bipolar adjective pair's response format of the Semantic Difference technique, Schibeci (1982) found that the TOSRA response format was more accurate in measuring student attitudes.

The TOSRA was also utilised in a study by Wong and Fraser (1996) in combination with the SLEI to investigate the environmental-attitude and associations of 1592 tenth grade chemistry students in Singapore. Using three of the seven TOSRA scales the study concluded that positive correlations existed between each attitude scale and each laboratory classroom environment except for the Open-Endedness scale.

A study incorporating both the WIHIC and TOSRA (three of the original scales containing twenty items) by Adolphe, Fraser and Aldridge (2003) was conducted using 594 students from Indonesia and 567 students in Australia to assess associations between student attitudes and scales of the WIHIC questionnaire. For both the Indonesian and Australian populations, significant multiple correlations were found between each attitude scale and set of WIHIC scales.

In 1981 Fraser established that three scales of the TOSRA, namely Leisure Interest in Science, Career Interest in Science and Enjoyment of Science Lessons have high inter-correlations indicating overlapping dimensions, and therefore can be merged into a single scale (Fraser, 1981; Khalili, 1987; Schibeci & McGaw, 1981). Some researchers (Aldridge, Fraser, Taylor & Chen, 2000; Lee, Fraser & Fisher, 2003; Wong & Fraser, 1996) select only some of the scales in the TOSRA instead of using them all due to the overlapping nature of the scales.

Improved student achievement and attitudes tend to be associated with learning environments which students perceive as positive, favourable, and fulfilling (Chang and Fisher, 2003). Rickards (1998) used the Henderson, Fisher and Fraser (1995) seven item *attitude to class* scale derived from the TOSRA, in conjunction with other

questionnaires, in a study comprising of 3,215 students in 158 lower secondary science classrooms in 43 schools in Tasmania and Western Australia. The study examined the relationship of teacher-student interpersonal behaviour with student sex, cultural background and student outcomes. The study found that student achievement and student attitude to class were positively associated with teacher-student interpersonal behaviour. A study by Kim, Fisher and Fraser (2000) reported a similar outcome.

Fraser and Lee (2009) used the TOSRA to examine the association between students' attitude towards science and their perceptions of their classroom environment. The study undertaken in Korea included ninety-nine students from a science-independent stream, 195 students from a science-oriented stream and 145 students from a humanities stream. Correlation analysis was used to investigate associations between classroom environment and students' attitudes towards science. Similarly to previous research, the study found that student achievement and student attitude to class were positively associated with teacher-student interpersonal behaviour.

A study exploring associations between student achievement and attitudes toward science and the nature of their classroom learning environment was completed by Robinson (2003) in the USA. The study involved a sample of 172 kindergarten aged children from six classes, with an ethnic make-up of 11.8% White, 49% Black, 33.6% Hispanic, and 5.6% of other ethnicities and a gender composition of 40.4% male and 59.6% female. English Speakers of Other Languages (ESOL) students made up approximately 45% of the kindergarten student population. English and Spanish modified versions of the WIHIC and TOSRA were used. The study found statistically significant associations existing between kindergarten students' perceptions of their classroom environment and their attitudes toward science.

A study involving 312 science students in four rural secondary schools in New Zealand (Lowe, 2004) focused on the effect of cooperative group work and assessment on the attitudes. Using the TOSRA students attitudes were assessed while qualitative results were obtained through teacher and student interviews along with researcher observations. The study also confirmed the reliability and validity of the TOSRA in New Zealand schools. Data was collected before and after three terms of cooperative learning in activities such as practical classes, fieldwork, and written

assignments and class tests. An outcome of the study was that group work and group assessment enhanced students' attitudes to science with students and teachers seeing real value in such activities.

Chantavong (2005) undertook a study, to examine students' attitudes towards statistics using an abbreviated version of the TOSRA. The study also sought to investigate associations between students' learning environments, their attitudes towards statistics as a subject and their cognitive achievement scores. The study completed in Thailand, utilised the QTI and CUCEI to obtain quantitative responses from 1,285 students in statistics classes. Data analyses revealed reasonably strong and positive associations between each of the classroom learning environment scales and students' attitude towards statistics and cognitive achievement scores.

Lang and Wong (2003) and Lang Wong and Fraser (2005) investigated the impact of the chemistry laboratory environment and teacher-student interaction on student attitudes towards chemistry among 200 gifted secondary-school students in Singapore. The study used the *Chemistry Laboratory Environment Inventory* (CLEI, a modified version of the SLEI), the *Questionnaire on Teacher Interaction* (QTI) and a 30-item version of the *Questionnaire on Chemistry-Related Attitudes* (QOCRA); a modified version of TOSRA, The study found associations between the interpersonal behaviour of the chemistry teachers and students' attitudes towards chemistry, and also between the nature of the laboratory classroom environment and students' attitudes towards chemistry.

Aldridge, Fraser and Ntuli (2009) used a modified form of the TOSRA to assess students' attitudes towards their mathematics classroom. The sample consisted of a group of 31 teachers studying a distance education course in South Africa and their 1,077 students. The study suggested a link between students' perceptions of the learning environment and their attitudes towards their mathematics classes. Based on the results it was observed that after teachers provided the students with opportunities to work in small groups and to discuss their ideas and understandings with each other, that teachers soon saw improved student attitude towards their mathematics class (Aldridge, 2009).

Also in 2009, Fraser and Lee also revealed associations between students' attitudes and their learning environments. The research observed that students' attitudes to science were more positive in classes where students perceived greater emphasis on notions of constructivism. Also, students' attitudes to science were more positive in laboratory classes where students perceive their laboratory lessons more favourably, and students' attitudes to science were more positive in classes where students more frequently perceive teachers as exhibiting less obliging behaviour and more cooperative behaviour.

In a cross-national study of classroom environments in Australia and Indonesia, Fraser, Aldridge and Adolphe (2010), used a modified version of the *What Is Happening In this Class?* (WIHIC) and TOSRA to cross-validate the questionnaires simultaneously in both countries. The study also sought to investigate sex differences in students' perceptions of their classroom environments and to investigate associations between students' attitudes to science and their perceptions of classroom environment. Correlation and regression analysis of 1,161 students, 594 students from 18 classes in Indonesia and 567 students from 18 classes in Australia, found that responses presented a generally positive association between the classroom environment and student attitudes to science in both countries.

Madu (2010) investigated associations between teachers' interpersonal behaviour, the classroom learning environment and students' outcomes using the *Questionnaire on Teacher Interaction* (QTI), *What Is Happening In this Class?* (WIHIC), and the *Test Of Science-Related Attitudes* (TOSRA). Data was collected from a sample of 785 students from 75 classes in five high schools in New York, and examination results from the New York State Regents were collected for 603 students in 37 classes as a measure of achievement. Simple correlation and multiple regression analyses revealed positive associations between the learning environment and students' attitudes, in which teacher support was the strongest independent predictor of student attitudes to science.

Tulloch (2011) used the *Constructivist Learning Environment Survey* (CLES) and a modified version of the Enjoyment of Science Lessons scale from the *Test of Science-Related Attitudes* (TOSRA) to investigate sex, age, and ethnicity as

determinants of classroom environment, as well as the effects of classroom environment on student attitudes at an urban two-year or junior college in Florida, USA. The sample consisted of 544 students in 29 classes that were randomly chosen. The study found that females enjoyed their classes significantly more than did males in which a large effect size of 0.88 standard deviations, suggesting an educationally important sex difference was found for the attitude scale. Relative to younger students, older students had higher Student Negotiation and Enjoyment scores. A possible implication is that teachers should make classrooms more appealing and enjoyable to males, while making younger adults feel a greater sense of inclusion in their classrooms.

Chapman (2012) undertook a study of 490 grade 6–8 students and 22 grade 5 students attending middle and elementary schools in Georgia. Using a refined version of the *What Is Happening In this Class?* (WIHIC) and a refined version of the *Test of Science Related Attitudes* (TOSRA) a series of simple correlation and multiple regression analyses revealed positive and statistically significant associations between students' attitudes and the nature of the classroom environment with the student as the unit of analysis.

Iqbal and Harrison (2012) undertook a study to investigate tenth grade Pakistani male and female students' attitude towards science using the TOSRA instrument. The sample consisted of 3526 students were from urban and rural Pakistani localities. The study reported a significant effect of gender and locale on students' attitude towards science. Girls were reported as having a significantly higher attitude towards science than boys on the total scale and all sub-scales of TOSRA exception the scale of Career Interest in Science which boys were slightly high than girls but this was not significant.

As described so far, in study after study and even with some modifications, the TOSRA has proved to be valid and reliable for assessing students' attitudes to their classrooms. It has further been shown that the questionnaire can be used with confidence with students in a wide variety of settings. This study seeks to determine student attitude based upon teacher-student interpersonal behaviour, but also needed to find an attitude tool that was efficient, simple and adaptable to the QTI.

A study by Henderson, Fisher & Fraser (1995) developed a seven-item '*attitude to class*' scale based on the TOSRA which provided an extremely efficient tool. The seven-item scale was fashioned with the same question format as the QTI, was also complimented in the use of the same Likert scale response system. For these two reasons it was apparent that the seven-item '*attitude to class*' scale, based on the TOSRA (Henderson, Fisher & Fraser, 1995; Fisher & Waldrip, 1997) would be suitable for this study.

Studies using the seven-item '*attitude to class*' scale have been used to examine associations in student attitude and learning environment. Henderson, Fisher and Fraser (1998a; 1998b) utilised the tool in a learning environment study of environmental science students in which the reliability for the scale was reported to be 0.68 with the student as the unit of analysis and 0.74 for the class mean score as the unit of analysis.

Studies by Waldrip and Fisher (1997) indicated a Cronbach alpha reliability of 0.79, and a study by Rickards (1998) found that 40% of variance in student attitude was due to teacher-student interpersonal behaviour.

The selection of the nine introductory questions and the attitude to class scale completed the development of a new learning environment tool called the *International Questionnaire on Teacher Interaction* (IQTI) for use within the Australian based international pathway learning environment.

### **3.8.5 Stage III - Qualitative data collection - Main study**

Qualitative student data was collected from 44 students on the eight behavioural scales of the QTI during the main study.

The qualitative data collection process needed to be concise so as to reduce the burden on the student and improve feedback response rate, needed to provide qualitative information to support the tool design and quantitative analysis and needed to reflect upon student attitude to the Australian based international pathway learning environment.

Against the eight behavioural scales of the QTI, students were simply presented with the name of each of the QTI behavioural scale title and requested to respond in writing, or asked via interview to respond to one or more questions (Appendix A) relating to the QTI scale titles. Qualitative feedback from students relating to the QTI behavioural scales from within the Australian based international pathway learning environment is presented in chapter four of this thesis.

Auto-ethnographic comments from the researcher also provides a rich source of further qualitative feedback given the researcher's experience of working within the Australian based international pathway learning environment in Australia and the Australian owned international pathway learning environment offshore, and lived experience as an expatriate in Kenya, Portugal, and England.

### **3.8.6 Stage IV - Quantitative data collection - Main study**

Opportunity was given for a group of Australian based pathway institutions across the world to participate in the quantitative data collection using the IQTI tool. However given differing access to technology, communications and other factors, only institutions within Australia, England, Wales, Canada, Sri Lanka and Kenya participated.

In giving all Australian based international pathways colleges the opportunity to participate it ensured that biased was removed from the study. It also increased the chance of institution and student participation. All Australian based international pathway colleges are co-educational which allowed for suitable samples of both sexes.

The main study collected data on a total of 64 items from within the IQTI comprising of nine introductory questions, 48 items based upon a modified form of the Australian version of the QTI, and seven unchanged items from the '*attitude to class*' scale based on the TOSRA.

To further provide structure to the study the researcher sought innovative ways to collect and structure data from multiple campus locations around the world. For the

purposes of efficiency an online questionnaire system and pen and paper system were devised for the study.

As many online data collection services were available, the researcher made a selection based on the following criteria:

- Cost Effectiveness
- Ease of use via a simple user interface
- Single data access location
- Mechanisms to protect against data loss and maintenance of data anonymity
- Large data storage facility
- Up-to-date feedback on data collection activities
- Data extraction facilities suitable for use in statistical analysis software

A range of online services were trialled with Formsite ([www.formsite.com](http://www.formsite.com)) finally selected as the suitable online service which provided all the services the researcher requested (Appendix E).

For efficiency and accuracy purposes the data collection using the online questionnaire consisted of:

- Pre-determined responses using a drop down box for introductory questions. These pre-determined responses were based on response systems used in other online questionnaire systems.
- A graphical user interface to allow easy selection of responses based upon a five point Likert scale.
- Clear information to indicate response requirements and indication of reversal of response scale.

The survey was also made available in print format (Appendix D) to participating Australian based international pathway colleges as a supplement for institutions with poor technology infrastructure and services and/or low student participation rates using online surveys.

For efficient and accurate pen and paper questionnaire completion, representative staff at each of the colleges was presented with relevant information to assist participant queries. This information was consistent with the online response options and was described in the ethics application materials for this study.

Researcher experience within the Australian based international pathway learning environment suggested that a majority of international colleges operate on a trimester system;

- Trimester 1: March – June,
- Trimester 2: July – September
- Trimester 3: November – February.

The nature of the trimester system allows minimal break periods except for those at the end of the year.

The quantitative data collection using the IQTI was completed in the third trimester over the months of December, January and February for the following reasons:

- Allow a maximum amount of time for the classroom environment to settle (weeks 4 – 10 of the trimester system),
- Conduct the questionnaire when events such as examinations were not present, and
- Provided flexibility to students and colleges to complete the questionnaire on campus or in their own time, as this third trimester has a unique break during the middle of the semester for the end of year holiday period.

Students were made aware of the IQTI delivery at each campus via standard communication lines managed by key staff at each campus. Students were made aware of the questionnaire web address via email, made available on college websites, promoted to students via email systems and via student learning interfaces. Colleges were also given the option to introduce the study via more traditional methods including noticeboard advertisements and in class announcements.

Over the three month period key staff at the participating colleges were communicated to via email by the researcher as a reminder that the study was still active, and also requested that students be reminded of the opportunity to complete the questionnaire.

On completion a thank you note was sent to all participating colleges, and too all students that had provided an email address via the online method.

Over 1,400 IQTI tools were received by the research for use in quantitative analysis.

### **3.8.7 Stage IV - Quantitative data analysis – Main study**

Data was extracted from the survey website and merged into Excel to create a master spreadsheet. Data extracted from the website came with a unique code to identify each completed questionnaire. Some colleges took up to two months to return the pen and paper version of the questionnaire. Returned pen and paper version of the IQTI which were complete were transcribed onto the end of the master Excel spreadsheet. Damaged or significantly incomplete questionnaires were not transcribed to the spread sheet whilst those questionnaires with small amounts of missing data were recorded.

In transcribing the data onto the Excel spreadsheet, each hard copy questionnaire was allocated a unique code. Random sampling and checking was conducted to verify the accuracy of the data entry.

The next stage involved the structuring of data for statistical analysis. Data analysis was completed using IBM SPSS 20(IBM, 2011).

As the design and format of the data collection had been a constant consideration throughout the study, data was easily transposed from one format to another. The data from the Excel spreadsheet was then inserted into IBM SPSS 20.

Data within SPSS was then cleansed of inconsistencies. Missing or anomalous data detected by SPSS was confirmed and corrected from the archive data. In line with

standard data cleansing process (Gelman & Hill, 2006), where a single data point was missing the researcher allocated the median response. In this instance a value of two (2) was inserted.

Against the 48 items of the modified Australian version of the QTI the median value was inserted where one or two missing value were recorded against the items of a QTI behavioural scale. If more than three missing values were evident within a scale the entire set of student responses to all items were deleted. As a result of this process a further three whole student responses to the IQTI were deleted; resulting in a final total of 1358 valid responses to the IQTI.

Where a student had not provided four or more of the seven data points of the attitude scale the total attitude scale was deleted. Where three or less data points were missing, the median value was inserted. Five student responses to the seven item '*attitude to class*' scale records were deleted, resulting in a total of 1353 valid responses to the attitude scale.

A list wise deletion was conducted to detect if any significant variation existed in the data when missing data values were deleted. It was noted that the alpha values data did not vary substantially when each test was run; however in all instances the more conservative calculations was reported. Data is presented to two (2) decimal places and in all cases values were rounded down at five (5). This information is further discussed in chapter four.

The data then underwent statistical analysis using SPSS. Data verification was completed using frequency and descriptive statistics. Validity and reliability analysis was completed using Pearson's correlation (including listwise deletion) and covariance (matrix). Cronbach's alpha reliability (including listwise deletion) analysis was conducted to determine the reliability of student responses to the items of each of the QTI behavioural scales. In addition, simple and multiple correlation analysis was completed between student responses to the '*attitude to class*' scale and the eight behavioural scales of the QTI.

Eta<sup>2</sup> analysis is usually used in QTI research to detect differences between classes. As this study does not use the class as the unit of analysis, due to the dynamics of the learning environment as describe in chapters one, two and three, Eta<sup>2</sup> could not be implemented as a statistical measure in this study.

### **3.8.9 Stage V - Quantitative data analysis - variables**

ANOVA analysis was completed on student responses to each of the QTI behavioural scales, when grouped by the introductory questions of this study. This analysis generated means scores and F values for the purpose of significance testing. ANOVA information was summarised into tables, and those F values indicating significance at  $p < 0.001$ ,  $p < 0.005$ ,  $p < 0.01$  and  $p < 0.05$  were identified. Pearson's Correlation coefficient was also used to determine the relationship between student responses to the variables of this study.

Maximum and minimum grouped mean score for each of the QTI behavioural scales which report significance were identified. Cronbach's alpha reliability coefficient analysis was conducted on each of the identified maximum and minimum grouped mean scores to determine if students within each data subset responded to the items of the QTI behavioural scale in a similar way. Analysis of quantitative data when grouped by the introductory questions of the IQTI is presented in chapter five.

### **3.8.10 Stage VI - Qualitative data analysis - variables**

Qualitative feedback was also sought from students within the Australian based international pathway learning environment based upon the analysis of quantitative student data from the main study, when the data was grouped according to the nine introductory questions of the IQTI. Seven questions were compiled and sent to 337 email student addresses which were provided to the researcher during the quantitative data collection process. A total of seventeen student responses were collected in which sample student comments have been provided within chapter five of this thesis.

The next section of this chapter will describe the methods used to develop the nine introductory questions of the IQTI and the selection of the attitude scale.

### **3.9 Chapter summary**

This chapter has provided a rationale and systematic description of the methodology used in this study. The chapter introduced and reinforced eleven research questions proposed for this study, provided the reasoning behind the base instrument selection of the QTI and the development and implementation of the modified QTI items. The chapter also provided the underlying principles involved in the selection of introductory questions, and described the benefits of incorporating an attitude scale to complement and create the IQTI.

This chapter has also provided a framework for the presentation and analysis of qualitative and quantitative data in the next two chapters of this thesis.

Chapter four will present the qualitative and quantitative data from the pilot and main components of this study in relation to the QTI and attitude scale. Validity and reliability information extrapolated from this data will also be presented. Chapter five will then present the analysis of the QTI behavioural scale based upon the groupings of the nine introductory questions of the IQTI. Supplementary qualitative student data and researcher observation is presented to support the outcomes of the quantitative data analysis.

## Chapter Four

### Validation and Reliability

जिज्ञासा के बिना, तुम अच्छी तरह से सीख नहीं कर सकता

“Without curiosity, you cannot learn well”

(Hindi proverb: English Translation)

#### 4.1 Introduction

Chapter three outlined the research questions and comprehensively described the research methodologies of the study. The chapter also described the process in which an existing learning instrument (the 48 item short form of the Australian version of the QTI) was modified and incorporated with additional introductory questions and an attitude scale, into a newly formed learning instrument called the *International Questionnaire on Teacher Interaction* (IQTI).

Chapter four will present qualitative and quantitative data collected during the pilot and main components of this study using the *International Questionnaire on Teacher Interaction* (QTI) against the behavioural scales of the QTI and the ‘*attitude to class*’ scale from the TOSRA.

#### 4.2 QTI qualitative data – pilot study

Stage I of this study’s methodology involved the collection of qualitative student feedback based upon the 48-item short form of the Australian version of the QTI. This feedback was then used, where necessary, to modify the behavioural scale items into a form that was mutually recognisable, understood and equally interpreted by all participants. The modified behavioural scale items of the Australian version of the QTI was completed using the principles of efficiency (grouping behavioural scale items together and reducing the item text length), and simplifying the items to the target audience (ensuring the items are culturally appropriate, language appropriate and non-discriminatory).

This section of this chapter will present qualitative student data collected during the

pilot study based upon each of the items of the eight behavioural scales of the 48 item short form of the Australian version of the QTI. Select verbatim student comments have been provided to support these findings and fictitious student names have been used to ensure student anonymity.

***Leadership behavioural scale items***

Feedback on the Leadership behavioural scale items was relatively limited. The researcher observed that students were not concerned with the Leadership behavioural scale items and typically allowed one or two students to provide feedback on behalf of the group.

Across all items of the Leadership scale one student made a single comment in which he/she stated:

*WeiWei: The Teacher should be speak slowly to students specially overseas students, because English is our second language*

This suggested to the researcher that language was important within the international pathway learning environment. It also gave an indication and reinforcement that there was a need to consider a simplified approach to item text.

Against the item ‘*The teacher talks enthusiastically about her/his subject*’ the word ‘*enthusiastically*’ was a focus of this item and notably became the object of further investigation by the students.

Two students were recorded as translating the word ‘*enthusiastically*’ into Chinese text. Even though this word was of interest, it was reiterated back to the researcher by the students without any other alternative words, and therefore was maintained within the final survey tool. Example student comments below support the same scale item:

*Priya: The teacher talks with interest and motivate students*

*Li: (enthusiastically) teacher talks interesting subject*

With the item ‘*The teacher holds our attention*’ provided a single student comment of:

*Lei: the teacher catch our attention*

This comment suggests confirmation from the student that they understood the item.

Against the items ‘*The teacher knows everything that goes on in the classroom*’, ‘*The teacher knows everything that goes on in the classroom*’ and ‘*The teacher acts confidently*’ there was no student feedback and the researcher recorded that there were no issues or concerns from student in regards to these behavioural scale items.

### ***Development of a modified set of Leadership behavioural scale items***

Qualitative student feedback against the Leadership scale behaviour items was limited; however the researcher noted that the lack of student feedback was a result of students having no issues or problems with the items.

Where feedback was received the students used similar language. This process indicated that there was no need to make major changes to the language of the Leadership behavioural scale items.

Student feedback was used to generate a set of modified behavioural scale items (Table 4.1) for the Leadership scale.

*Table 4.1: Modified Leadership behavioural scale items*

<b><i>Leadership behavioural scale items used to gain qualitative feedback – Stage I*</i></b>	<b><i>Modified Leadership behavioural scale items used to gain quantitative data – Stage II and IV</i></b>
The teacher talks enthusiastically about her/his subject.	In this class this teacher; talks enthusiastically about the subject
The teacher would explain things clearly.	explains things clearly to us
The teacher holds our attention.	holds our attention
The teacher knows everything that goes on in the classroom.	knows everything that goes on in the classroom
The teacher is a good leader.	Is a good leader
The teacher acts confidently.	Acts confidently

\* Rickards, 1998

The Leadership behavioural scale items were simplified through the removal of repetitious text. This process was applied to all behavioural scale items in the modified QTI tool used in this study.

***Helping/Friendly behavioural scale items***

More student feedback was recorded against the Helping/Friendly scale and the researcher observed that students seemed to enjoy talking about these types of teachers.

The first Helping/Friendly scale item to be discussed was the item of '*This teacher is friendly.*'

One student comment reflected the sentiments of most students within the group:

*Fatima: "friendly - we can make firend with"*

The scale item '*This teacher is someone students can depend on.*' was recorded as having words of interest rather than words of concern, and reflected the students acknowledgement of key aspects of the item. These words of interest are represented below:

*Mira: "(someone)"*

*WeiWei: "(depend on)"*

Against the scale item '*The teacher has a sense of humour.*' It was recorded that students indicated words of interest and concern as students found it difficult to differentiate the difference between this scale item and the following scale item.

*Joseph: "(a sense of humour)"*

*Lei: "humour = joke?"*

To the scale item '*This teacher can take a joke.*' further reinforcement was received which demonstrated student confusion between humour and a joke expressed by

students in the previous item, and further indicated that a joke or humour within the classroom environment could only be experienced by the teacher.

*Adit: "The teacher thinks it's funny, but student doesn't think so".*

These observations were recorded by the researcher and reflected in the revised Helping/Friendly behavioural scale items.

Against the scale item of *'This teacher's class is pleasant.'* there initially appeared to be some confusion over the word pleasant with two opposing responses:

*Sofia: "I is fun to be in his/her class"*

*Mira: "(pleasant) I don't understand that word"*

The researcher observed that during the discussion the word pleasant was not of great concern to other participants. The item *'This teacher helps us with our work.'* received no responses.

#### ***Development of a modified set of Helping/Friendly behavioural scale items***

The qualitative student data collected during the pilot study suggested that in general students interpreted and understood the behavioural scale items of Helping/Friendly in a similar way.

Student feedback also suggested that there may be some confusion around the item *'This teacher can take a joke'* in which the joke may only be by the teacher indicating one-way communication. This item was modified to *"has fun with us"* to signify a collective enjoyment of the class.

The item relating to a teacher being pleasant was retained as only one student expressed concern with the term pleasant while no other students expressed concern or issue with the item. The above feedback was then used to generate a set of modified items, presented in Table 4.2 on the next page, for the scale of Helping/Friendly.

Table 4.2: Modified Helping/Friendly behavioural scale items

<i>Helping/Friendly behavioural scale items used to gain qualitative feedback – Stage I*</i>	<i>Modified Helping/Friendly behavioural scale items used to gain quantitative data – Stage II and IV</i>
This teacher helps us with our work	In this class this teacher Helps us with our work
This teacher is friendly	Is friendly to us
This teacher is someone students can depend on	Is someone we can depend on
This teacher can take a joke	Has fun with us
The teacher has a sense of humour	Has a sense of humour
This teacher's class is pleasant	Is pleasant to us

\* Rickards, 1998

### *Understanding behavioural scale items*

Discussions with students on the Understanding scale item of ‘*This teacher trusts us*’ did not raise any issues. Some student comments indicate their reflection on a recent teacher as evidenced below:

*Muhammad: "sure"*

*Ming: "sometimes"*

Whilst against the scale item ‘*If we don't agree with this teacher, we can talk about it.*’ a student responded by stating:

*Ming: "doesn't give a damn".*

It was interesting to note that this student was the same student who responded with “*sometimes*” against the previous scale item. No other concerns were raised by students against this scale item.

The scale item of ‘*This teacher realises when we don't understand*’ also generated little discussion in which one student appeared disgruntled by a recent teacher by responding:

*Lewis: "ignores"*

Whilst another student response indicated that the word ‘realise’ as a word of interest:

*Iman: “(realises)”*

When asked to discuss the final item of ‘*This teacher is patient*’. The researcher recorded no major concerns with the item language, however the same student who had responded earlier, expressed:

*Ming: “I don’t think so”*

No written responses were recorded from students against the behavioural scale items of ‘*This teacher is willing to explain things again.*’ and ‘*If we have something to say, the teacher will listen*’ and discussions with students on these two items by the researcher did not raise any further concerns.

#### ***Development of a modified set of Understanding behavioural scale items***

Overall student feedback reinforced the Understanding scale descriptors provided in literature.

The above feedback was then used to generate a set of modified items (Table 4.3) for the scale of Understanding.

*Table 4.3: Modified Understanding behavioural scale items*

<b><i>Helping/Friendly behavioural scale items used to gain qualitative feedback – Stage I*</i></b>	<b><i>Modified Helping/Friendly behavioural scale items used to gain quantitative data – Stage II and IV</i></b>
This teacher trusts us	In this class this teacher trusts us
If we don't agree with this teacher, we can talk about it.	allows us to talk to them when we do not understand
This teacher is willing to explain things again	is willing to explain things again to us
If we have something to say, the teacher will listen	Listens to us
This teacher realises when we don't understand	realises when we do not understand
This teacher is patient	is patient with us

\* Rickards, 1998

***Student Responsibility/Freedom behavioural scale items***

The behavioural scale items of ‘*Students can decide some things in the teacher's class*’, ‘*We can influence this teacher*’, ‘*This teacher lets us fool around in class*’, and ‘*This teacher lets students get away with a lot in class*’ received no written responses as there was a general consensus that these items were clear. Follow up discussions by the researcher with students indicated that students had no concerns with the language within each of these behavioural scale items.

When reviewing the scale item ‘*This teacher gives us a lot of free time in class*’, one student provided a response of:

*Priya: “(us a lot of free time in class) teacher give long breaks the teacher is kind”,*

This response indicated that the student confused class time with break time. On discussion of this item between students and the researcher a similar sentiment was expressed that this could be interpreted as a teacher who lets students go on extended breaks rather than giving students free time in class to complete activities.

Against the scale item ‘*This teacher is lenient*’ a number of responses were recorded which identified an issue with the word lenient:

*Ming: “24 (lenient)”,*

*WeiWei: “(lenient)”,*

*Grace: “(lenient)”*

*Mira: “(lenient)”.*

Against the same item other students responded with:

*Li: “the teacher is not strict”,*

*Priya: “the teacher is not strict”,*

*Iman: “(lenient) not strict”,*

*Adit: “(lenient) (Chinese text)”*

*Fatima: The teacher can't control the class”*

*Sofia: “(lenient) (Chinese text) can't control”*

These responses not only reinforced students understanding on the scale item but also supported the oppositional nature of the Student Responsibility/Freedom scale to the Strict scale.

On discussion, the researcher observed some confusion between students during the group discussions in relation to the word ‘*lenient*’.

These discussions also led back to the item ‘*This teacher lets us fool around in class*’ in which students asked about a ‘*fool*’ being someone who has a ‘*joke*’, as in the Helping/Friendly scale. This indicated to the researcher that the word ‘*fool*’ may also cause participant confusion.

***Development of a modified set of Student Responsibility/Freedom behavioural scale items***

Three of the behavioural scale items remained similar to the behavioural scale items from previous research (Rickards, 1998) with the revision focused around simplifying and reducing the item length.

The remaining three items, as presented in Table 4.4, were either modified to reduce interpretation error or to alleviate student concern with particular item intent or meaning.

*Table 4.4: Modified Student Responsibility/Freedom behavioural scale items*

<b><i>Behavioural scale items used to gain qualitative feedback – Stage I*</i></b>	<b><i>Modified Student Responsibility/Freedom behavioural scale items used to gain quantitative data – Stage II and IV</i></b>
We can decide some things in this teacher's class	In this class this teacher allows us to decide some things in class
We can influence this teacher	can be influenced by us
This teacher lets us fool around in class	Let's us make choices in class
This teacher lets students get away with a lot in class	Let's us get away with a lot
This teacher gives us a lot of free time in class	Let's us do what we like
This teacher is lenient	Makes us feel equal

\* Rickards, 1998

Using student feedback and reflecting upon the behavioural scale descriptions the word '*lenient*' was replaced with '*feel equal*' and '*fool*' replaced by '*make choices*'.

It was observed by the researcher that students were receptive and willing to cooperate and reflect upon positive attributes of teacher behaviour. However, it was noted that this participation reduced, requiring further researcher input, prompting and persistence to comment upon the negative teacher behaviour scales and items. On occasion, it was noted that students were uncomfortable about discussing their opinions of their teacher when negative behavioural attributes were the focus.

Through researcher direct experience from within the international pathway learning environment in Australia, and lived experience in countries in which these students originate, it was observed that many of these students had already experienced hardships and difficulties, and had undertaken complex routes towards their education. Students were acutely aware that they did not wish to cause conflict or provide negative feedback about their current experience as this may have repercussions or consequences on their own learning.

During this exercise the researcher was able to encourage students to respond to the negative behavioural scale descriptors by confirming their anonymity would be protected and providing an open and honest environment in which students felt safe. Student feedback had to be drawn out during these discussions. A number of comments were also provided that expressed student concerns when associating negative behaviours to a teacher.

It was however noted by the research that students were more open to discussions when these negative teacher attributes were expressed as either an absence or reverse meaning of a positive behavioural attribute, a learning environment which was influenced by a negative teacher or the effect on students when a negative teacher is present.

#### ***Uncertain behavioural scale items***

No responses were recorded against the behavioural scale items of '*The teacher acts as if she/he did not know what to do*' and '*The teacher is not be sure what to do when*

*we fool around*'. The researcher noted that the discussion with students indicated that there were no words of concern of issue within these items.

When reviewing the item *'It's easy to make a fool out of the teacher'* a student responded:

*Yan: '(fool out) go away / with'.*

It was noted by the researcher during the discussion session with students that the concept of a *'fool'* or *'fooling around'* was confusing to some students, especially seeing it was used in both the positive and negative behavioural scale items. Discussions at the time by students revolved around associating the act of fooling around as being an environment where jokes or humour were used.

The item of *'The teacher lets us boss her/him around'* was responded by one student and generally expressed the sentiments of the group:

*Ahmad: '(boss) (Arabic writing) The teacher s not so confident or may be shy so he can't control the class which make the students to control the class and him'.*

Against the scale item of *'The teacher is hesitant'* one student response indicated interest in the word *hesitant*, while other students acknowledge the words meaning which appeared to be accepted by the rest of the group as an appropriate response;

*Seto: 14 (hesitant)"*

*Anish: The teacher must no what to teach (hesitant)*

#### ***Development of a modified set of Uncertain behavioural scale items***

During the qualitative collection a number of discussions around meanings of words were recorded by the researcher as students reflected upon the negative behavioural scales. These discussions were around the use of the prefix on *'un-'*, *'im-'* and *'dis-'* used to describe negative teacher behaviour characteristics within this scale and the remaining negative scales.

In general students appeared to respond well to the use of short or common words with a prefix such as *'unsure'* and *'Dissatisfied'* but were appeared to at times have difficulty interpreting words such as *'Uncertain'* and *'impatient'*. The researcher was not able to ascertain if this was an actual linguistic barrier or an opportunity for students to avoid discussing negative teacher attributes, so these behavioural scale items were also modified.

The researcher was however able to gain student consensus on the use of alternative words as presented in Table 4.5.

*Table 4.5: Modified Uncertain behavioural scale items*

<i>Uncertain behavioural scale items used to gain qualitative feedback – Stage I*</i>	<i>Modified Uncertain behavioural scale items used to gain quantitative data – Stage II and IV</i>
The teacher seems uncertain.	In this class this teacher Lacks confidence
The teacher is hesitant.	Acts hesitantly
The teacher acts as if she/he did not know what to do.	Acts as if they do not know what to do
The teacher lets us boss her/him around.	Cannot control us
The teacher is not be sure what to do when we fool around.	Is not quite sure what to do when we are disruptive
It's easy to make a fool out of the teacher.	Is unsure

\* Rickards, 1998

### ***Dissatisfied behavioural scale items***

When students were asked to respond to the scale item *'This teacher thinks that we cheat'* one student response provided a clear understanding of the scale item. This response was agreed to with by other students during the discussion of the Dissatisfied behavioural scale items with the researcher:

Boniface: *'cheat --> talking during the test'*

Other students took a more defensive stance to this item as indicated in the responses below:

Min: *'we good students'*

Fang: *'(cheat) these words are too mean to students!'*

*Anish: 'I don't like this one.....very mean'.*

These comments confirmed the researcher's observation that students understood the concept of cheating, rather than had difficulty in interpreting its meaning, and that students did not like responding to specific negative items.

The scale item of *'The teacher thinks that we don't know anything'* provided one student response which was agreed to by other students within the group:

*Vijay: '(don't know anything)'.*

During discussion with the researcher the word *'don't'* was identified as a word of interest rather than concern which led to discussions around the use of punctuation. The researcher clarified with students that they preferred the use of the full phrase *'do not'* rather than *'don't'*.

*'This teacher puts us down'* created concerns with some students responding with the same written concern as evidenced below:

*Min and Alia: '(puts us down)'.*

Reflecting on the Dissatisfied scale descriptors (refer to Table 2.9) and on student feedback on the behavioural scales, a revised item of *'This teacher looks sad'* was provided to students in which there was an agreement that this was more appropriate.

*'This teacher thinks that we can't do things well'* provided only one response from a student which was recorded as words of interest rather than of concern:

*Seto: '(can't do thingws well)'*

The word *'suspicious'* in the item *'This teacher is suspicious'* provided the greatest number of student responses within the group of items of the Dissatisfied behavioural scale. Some of these comments are listed on the following page:

*Yan and Min: ‘(is suspicious)’*

*Hafiz and Ahmad: ‘(suspicious)’*

*Titus: ‘(suspicious) don’t understand)’*.

All student comments during the interview reflected the above three student concerns during the discussion.

It was also recorded during discussions that some students either chose not to, or could not, imagine a teacher who was suspicious. The alternative text proposed by the researcher that a teacher “*does not trust*” was best accepted by students and also reflected the language used in previous literature.

The item ‘*This teacher seems dissatisfied.*’ Received no responses and therefore remained the same.

#### ***Development of a modified set of the Dissatisfied behavioural scale items***

The result of this process was that four of the Dissatisfied behavioural scale items remained similar to previous research, with two behavioural scale items being modified to reflect student feedback (Table 4.6).

*Table 4.6: Modified Dissatisfied behavioural scale items*

<i>Dissatisfied behavioural scale items used to gain qualitative feedback – Stage I*</i>	<i>Modified Dissatisfied behavioural scale items used to gain quantitative data – Stage II and IV</i>
This teacher thinks that we cheat	In this class this teacher thinks that we cheat
The teacher thinks that we don’t know anything	Acts as if we do not know anything
This teacher puts us down	Looks sad
This teacher thinks that we can't do things well	Tells us we cannot do things well
This teacher seems dissatisfied	seems dissatisfied
This teacher is suspicious	does not trust us

\* Rickards, 1998

#### ***Admonishing behavioural scale items***

Against the scale item ‘*This teacher gets angry unexpectedly*’ one student responded:

*Yan: ‘(angry unexpectedly)’*

The same student responding to the item '*This teacher gets angry quickly*' with:

*Yan: '(angry quickly)'*

Both of these comments recorded as words of interest rather than concern. During the group discussion, students appeared to consistently agree that there were no issues relating to these items.

Two student responses below were recorded and used in discussions with the researcher against the item '*This teacher is too quick to correct us when we break a rule*'. These responses confirmed student understanding of the item.

*Harris: 'The teacher advice straight away when we break a rule'*

*Amin: '(to quick to correct us)'*

The item '*This teacher is impatient*' provided the same response of from two students:

*Yan and Min: '(impatient)'*

During the discussion with the researcher this was recorded as a word of concern, and when rephrased as '*is not patient*' gained a more positive response from students indicating a concern with the prefix '*im-*'.

The following two items also caused students concern; '*It is easy to pick a fight with the teacher*' and '*This teacher is sarcastic*'.

Against the first of these items two student responses were the same:

*Yan and Min: '(pick a fight)'*

Four students responded to the second item with:

*Yan: ‘(This teacher is sarcastic)’*

*Hafiz and Ahmad: ‘(sarcastic)’*

*Fang: (sarcastic) don’t understand’.*

One student responded a further written comment across all of the Admonishing behavioural scale items:

*Yan: ‘I don’t like any of this words saying about teachers!’*

These qualitative student data confirmed the researcher’s earlier observation that students appeared to struggle with the concepts of negative teacher behaviours.

#### ***Development of a modified set of Admonishing behavioural scale items***

The first two items of the Dissatisfied scale were modified in length (Table 4.7) with the use of the standard precursor text, however the remaining four items were notably reworded to reflect student feedback and scale descriptors used in previous literature referred to in chapter two.

The focus of these four items was shifted from the more directly negative aspects of a teacher, to a more indirect use of language which was derived from the QTI behavioural descriptors.

*Table 4.7: Modified Admonishing behavioural scale items*

<b><i>Admonishing behavioural scale items used to gain qualitative feedback – Stage I*</i></b>	<b><i>Modified Admonishing behavioural scale items used to gain quantitative data – Stage II and IV</i></b>
	In this class this teacher
This teacher gets angry unexpectedly	Gets angry unexpectedly
This teacher gets angry quickly	Gets angry quickly
This teacher is too quick to correct us when we break a rule	Gets annoyed with us
This teacher is impatient	Is not patient with us
It is easy to pick a fight with the teacher	Forbids us from talking
This teacher is sarcastic	Makes a fool of us

\* Rickards, 1998

***Strict behavioural scale items***

For the scale item *'The teacher is strict'* a student response set the topic of discussion with the researcher:

*Hafiz: 'The Teacher should know, which students are active and passive'*

In general this recorded comment indicated the overall student feeling that a teacher who is strict has a sense of control and judgement within their class.

The scale item of *'We have to be silent in the teacher's class'*, student support and understanding of the item was reflected in the following student comment:

*Harris: 'We have to keep quiet in class'*

The item *'This teacher's tests are hard'* prompted an international student to respond:

*Titus: 'The tests are too much question but less time to do it (not enough times)'*

This comment prompted further group discussion and led to the researcher revising the item to focus more on the difficulty of the test rather than the format and planning of the test.

The item *'We are afraid of the teacher'* provided no student responses.

The remaining items drew more discussion from students than comments.

The first item *'The teacher's standards are very high'* was responded by student *Hafiz: 'The teacher expect good marks of the students'* which gave an indication that the student understood the item scale.

The second item *'The teacher is severe when marking papers'* had three similar responses (next page):

*Deep: 'the marking is strict',*

*Amin: 'The teacher is strict when marking papers'*

*Alia: 'The teacher stingly give mark'*

Discussions with students on this scale item reflected earlier responses to the scale of Strict with words such as '*control*' and '*sets rules*' being repeated.

As these also form the language from the scale descriptors used in previous literature (refer to Table 2.9) these were incorporated into the modified QTI tool.

### ***Development of a modified set of Strict behavioural scale items***

The items of the Strict scale were modified based on student feedback and review of previous literature (Table 4.8). As employed earlier, a focus was to remove difficulties in interpreting each scale whilst also reducing the text character length of each item.

*Table 4.8: Modified Strict behavioural scale items*

<b><i>Strict behavioural scale items used to gain qualitative feedback – Stage I*</i></b>	<b><i>Modified Strict behavioural scale items used to gain quantitative data – Stage II and IV</i></b>
	In this class this teacher
The teacher is strict	Is strict with us
We have to be silent in the teacher 's class	Wants us to be silent
This teacher's tests are hard	Makes us work hard
The teacher's standards are very high	Sets clear rules
The teacher is severe when marking papers	Controls us
We are afraid of the teacher	Makes us afraid

\* *Rickards, 1998*

The modified items of the Australian version of the QTI learning environment tool were finalised and prepared for implementation with a small sample group of students from within the Australian based international pathway learning environment.

The next section of this chapter will present key findings from the quantitative student data collection using the modified behavioural scale items drawn from the

Australian version of the QTI.

### 4.3 QTI quantitative data – pilot study

Stage II of the research methodology involved the collection of student quantitative data based upon the modified QTI behavioural scale items developed in Stage I.

Quantitative data was collected in Stage II from 164 students studying within Australian based international pathway colleges from four (4) locations of Kenya, Canada, Australia and Sri Lanka. The mean score of items for each behavioural scale of the modified QTI tool was calculated as a single point of data for further data analysis and comparison with previous studies (Table 4.9).

*Table 4.9: Mean Scores of the Pilot Study Data*

<b>QTI Scale</b>	<b>Mean Score</b>
Leadership	3.31
Helping/Friendly	3.11
Understanding	3.32
Student Responsibility/Freedom	2.49
Uncertain	0.72
Dissatisfied	0.75
Admonishing	0.91
Strict	2.17

*n=164*

It can be observed in Table 4.9 that the positive behavioural scales of Leadership, Helping/Friendly and Understanding have means scores ranging from 3.11 – 3.32. Negative scale means scores for Uncertain, Dissatisfied and Admonishing have similar mean scores ranging from 0.72 – 0.91. The opposite scales of Student Responsibility/Freedom and Strict have mean scores of 2.49 and 2.17 respectively.

To test the reliability and validity of the quantitative student data collected during the pilot study, a statistical analysis was completed using the Cronbach's alpha reliability coefficient (Cronbach, 1951) and recorded in Table 4.10. Table 4.10 on the following page, indicates that the eight scales of the modified QTI ranged between a value of 0.73 and 0.93 using the Cronbach's Reliability Coefficient. The alpha

reliability results of this pilot study reflect alpha reliability values previously reported in studies by Fisher, Fraser and Wubbels (1993) and Fisher, Fraser, Wubbels and Brekelmans (1993), Rickards (1998) Khine and Lourdusamy (2005).

*Table 4.10: Internal Consistency of the Pilot Study Data*

<b>IQTI and Attitude Scale</b>	<b>Cronbach's Alpha Reliability</b>
Leadership	0.86
Friendly	0.89
Understanding	0.86
Student Responsibility/Freedom	0.80
Uncertain	0.93
Dissatisfied	0.92
Admonishing	0.82
Strict	0.73

*n=164*

These alpha reliability values indicate strong internal consistency within the eight behavioural scales when the modified items of the QTI are used. This suggests that the modified items of the QTI provide for a valid and reliable instrument for use with students within the Australian based international pathway learning environment.

To investigate the relationship between scales, a Pearson's Correlation coefficient test was conducted, and the correlation relationship against the scale of Leadership was presented in Table 4.11 on the next page. Figure 4.1, on the next page, illustrates the relationship which exists between related scales such as the positive scales of Leadership, Helping/Friendly and Understanding, and similarly related negative items such as Admonishing, Dissatisfied and Uncertain.

It can be observed in Table 4.11 and Figure 4.1 (on the following page) that the correlation decreases as you move away from its origin (starting scale), and that those scales that are opposite are negatively (or at least have the lowest) correlation and those scales that are adjacent are positively correlated, with an increase in correlation value back to the original scale. This is a key characteristic of the QTI (Wubbels, Brekelmans & Hooyman, 1991) and supports the circumplex nature of the data collected in this pilot study.

Table 4.11: QTI Interscale Correlation - Pilot Study Data

Scale	Unit of Analysis	DC	CD	CS	SC	SO	OS	OD	DO
Leadership (DC)	Pearson	1.00	0.40**	0.35**	0.14**	-0.31**	-0.30**	-0.102**	-0.06
	Corr								
Friendly (CD)	Sig		0.00	0.00	0.00	0.00	0.00	0.00	0.07
	Pearson		1.00	0.48**	0.30**	-0.26**	-0.31**	-0.32**	-0.41
Understanding (CS)	Corr			0.00	0.00	0.00	0.00	0.00	0.23
	Sig			1.00	0.21**	-0.25**	-0.40**	-0.26**	-0.07*
Student Responsibility/ Freedom (SC)	Corr				0.00	0.00	0.00	0.00	0.04
	Sig				1.00	0.00	-0.10**	-0.24**	-0.08*
Uncertain (SO)	Pearson					0.99	0.00	0.00	0.01
	Corr					1.00	0.50**	0.30**	0.07*
Dissatisfied (SO)	Sig						0.00	0.00	0.02
	Pearson						1.00	0.36**	0.22**
Admonishing (OD)	Corr							0.00	0.00
	Sig							1.00	-0.033
Strict (DO)	Pearson								0.32
	Corr								1.00
	Sig								

\*\* p&lt;0.005

\* p&lt;0.05

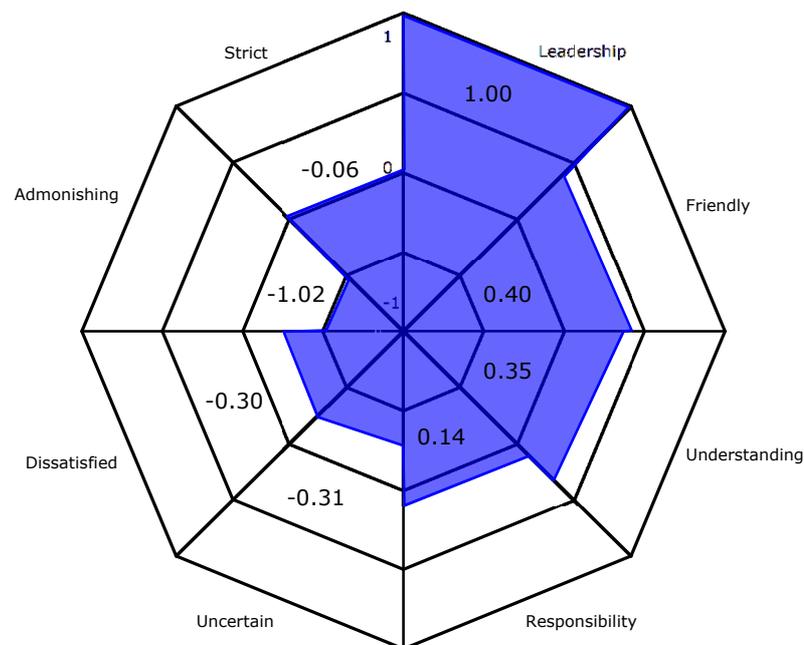


Figure 4.1: Circumplex model using interscale correlations based upon the Leadership scale of the QTI using quantitative data from the pilot study

Reliability and validity information indicates that there is strong internal consistency of modified items within each of the behavioural scales of the QTI, and that the results are comparable to that of previous studies using the QTI. In addition, it is examined that alpha reliability values for the items within each of the behavioural scales, and correlations between the eight scales of the QTI from this pilot study are comparable with previous studies.

The next sections of this chapter will present the qualitative and quantitative data collected from the main component of this study (Stage III – IV).

#### **4.4 QTI qualitative data – main study**

Stage III of the study methodology required the collection of qualitative student data against the eight behavioural scales of the QTI. Students from within the Australian based international pathway learning environment were simply presented with the name of each of the QTI behavioural scale title and requested to respond in writing, or asked via interview to respond to one or more questions relating to the QTI scale titles.

All student qualitative data presented in this thesis is verbatim and includes errors. Representative student qualitative data has been grouped by response theme under each of the eight behavioural scales of the QTI. This process of grouping similar student qualitative responses follows similar approaches in learning environment research to present student qualitative data (Goh, 2005; Lawrence, 2004; Rickards, 1998). Scale mean scores for the total student sample have also been provided at the beginning of each section for each of the QTI scales. This assists in bringing the quantitative and qualitative information together to support the construct validity and the assembly of findings.

Qualitative student data was gained through open questioning in which students from the sample population were not guided by the QTI descriptors. Qualitative feedback against the QTI scales was collected at the beginning and end of the quantitative data collection process. Students from the sample population were presented with the name of each of the QTI behavioural scale title and/or requested to respond in

writing and/or asked (verbally) to respond to one or more questions relating to each of the QTI scale titles (Appendix A).

#### 4.4.1 Leadership

The mean score for the Leadership behavioural scale from the quantitative data analysis was 3.12. Students within the Australian based international pathway learning environment were asked to reflect on their understanding of a teacher who demonstrates the behavioural characteristic of leadership. According to Khine and Lourdasamy (2006) the QTI behavioural scale of leadership is demonstrated by the ‘*extent to which teacher provides leadership to class and holds student attention*’.

Representative student responses from this study to the Leadership scale which reflect the language used in literature included:

*Yan: lead/guide the students in doing some things responsible*

*Harris: Responsible to other members, the leader must has self esteem, courage and could help the members*

*Fang: lead the class well, patient, cheerful*

*Anish: Is to motivate the student in class and employee in the company*

*Deep: Persuade th students to get involve in class activity*

*Titus: good communication for the student*

*Hafiz: leadership: style of give direction to student*

*Boniface: to be good leader teacher can give all material to student must be calm*

*Fatuma: guider*

*Patrick: Teachers who can clearly show students where the goals are and what students have to do to achieve those aims successfully.*

*Wasim: teachers should be carismatic, it doesnt mean always quite and strick , have to control students not to bother others*

*Peng: A good leader would be a person who takes respossibility into their hands and a quick problem solver, to help students undersatnd what they need.*

*Violet: A person who can control the class and can manage student well*

*Jun: A visionary head*

*Min: Supervisor*

*Irfan: give us the correct learning target, lead student to study.*

Other student responses exhibited language from both the Leadership and Helping/Friendly behavioural scales of the QTI, with some examples provided below:

*Yan: The leader should be friendly to students and try to speak slowly to students, specially international students*

*Vijay: responsible, confident, dress smart, friendly, helpful, able to control class*

*Fang (lecturer A) - able to lead the class, make the whole class focus only on her, easy to build friendly relationship*

*Boniface: Leadership is one person that sets the rules and all the members follow the rules. A good leader should be able to get the attention and open co-operation or be members*

*Geet: teacher in a different way to other students?*

*Kefah: supportive, committed and knowledgeable*

*Mohammed: Able to make students involved much in class and maintain proper learning atmosphere.*

*Julius: one who is charismatic and influences motivation to his/her students.*

*Nadeem: Would be one that guides his/her students in all forms of learning, give adequate and practical examples, ensure that the students understand what they teach and would go to great lengths to ensure that any problems faced by the student is eased or cleared and leads them in the correct path.*

*Mehul: who can make student active and think independent.*

*Flora: Listens to all and makes the right choices by the students.*

*Amann: not teach but advise the way*

*Tran: A person who initiates the learning experience and has*

*patience in teaching a particular lesson until he/she feels confident that the lesson is well-absorbed.*

A few students used language which made a distinction between the qualities of a teacher who is a Leader or Strict, with one such comment:

*Lewis: “teachers should be carismatic, it doesnt mean always quite and strick , have to control students not to bother others”.*

In general, words such as ‘*guider*’, ‘*leader*’, ‘*responsible*’, ‘*control*’ and ‘*direction*’ tended to be qualities that students perceived in a teacher who is a leader. The language used by students in this study is reflective of previous literatures description of the Leadership scale (Khine & Lourdusamy, 2006). In interviews with students, the researcher observed that the Leadership attribute or behavioural trait was associated with positive aspects of teacher behaviour. This observation was reflected in the written comments from participant students.

A smaller group of student responses to the Leadership scale also appeared to incorporate language that encompassed scale descriptors used in literature (den Brok, Brekelmans, Levy, Wubbels, 2002) to describe the adjacent Helping/Friendly behavioural scale.

The next section will provide an analysis of qualitative student responses regarding the behavioural scale of Helping/Friendly.

#### **4.4.2 Helping/Friendly**

The quantitative data analysis reported a mean score for the Helping/Friendly behavioural scale of 3.06. During this study the researcher sought qualitative feedback from students on a teacher who is helping and friendly. According to den Brok, Brekelmans, Levy and Wubbels (2002) a teacher who represents the QTI behavioural scale of Helping/Friendly is one that ‘assists, shows interest, shows concern, is able to take a joke and inspires confidence and trust’.

Examples of grouped qualitative responses from this study which represent the

Helping/Friendly scale described in literature include:

*Yan: help me with some sort of difficulty*

*Anish: help provided are very good*

*Hafiz: always smile and ask question to the students*

*Titus: student can make friend with them*

*Iman: help provided are very good. Help is attainable.*

*Fatuma: Nice*

*Joseph: Good teachers, I would be comfortable with him/her. It would be a pleasure for me to come to class.*

*Fang: (lecturer B) - quite flexible, easy to communicate with, clear and straight forward when comes to lecture and tutorial*

*Boniface: helpful with assignment, good teacher, very friendly*

*Hafiz: go to student desk and ask them questions gently*

*Geet: teacher must listen to every student. he has to give equal opportunities to all of them. it is very important in their growth.*

*Fatuma: Kind teacher.*

*Patrick: Prepare well the content for every lecture and tutorial and show students in a interesting way.*

*Violet: A teacher who offer and welcoming any student's enquiries about some materials*

*Kefah: listens to students*

*Mohammed: Able to solve students' enquiries and is patient enough to answer questions, usually can make friends with students.*

*Amann: real teachers*

*Tran: A person who is very approachable and willing to clarify lessons that are not well understood.*

*Jun: A world changer-changing lives*

*Julius: one who encourages participation and workshop tutorials and is corporative with issues arised and allows for debate arguments.*

*Min: willing to answer students questions and realize students do not understand even they still not yet ask.*

*Mehul: only care student in class and friendly answer.*

*Irfan: Very helpful to answer with the class question, and other question.*

Some students from within the sample population reflected on non-verbal behaviours such as tone of voice and facial expressions to describe a teacher who is Helping/Friendly:

*Adit: calm voice*

*Iman: Tone of voice. Smile (facial expression)*

*Li: smile/voice*

*Vijay: always smile and try to help the student as best as they could*

*Flora: He/she would always have a smile on their face, and answer the stupidest questions.*

*Nadeem: Would be one that is very helpful and creates a certain atmosphere around him/her that draws the students to them, always has a solution for everyone and like a friend always there to help the student in whatever problem they have, it being academic or even personal. <always got a smile on their faces*

Another smaller group of student used language which was synonymous to language used in literature (Khine & Lourdasamy, 2006) to describe a Helping/Friendly teacher and an Understanding teacher:

*Peng: A person who would help in a problem, understand a student's mistake or difficulty and assess the problem in a kind manner.*

*Seto: helping you to understand what you do not understand. Smile*

*Grace: a helping teacher makes the lecture easy to understand, nice*

*Joseph: helping to understand the concept*

*Mira: When I don't understand word some teacher will help to explain what that's mean*

Within this scale, student participants also demonstrated an appreciation of teacher awareness of English language barriers. This attentiveness to language quality was perceived to be held by teachers who are Helping/Friendly with an exemplar comment:

*Wasim: they treat international students as non-english-speakers so, they talk quite slowly and nicley and always feel free to ask. they are sometimes funny too. (but if every teachers speack slowly it's going to be stressed to other students .english skill requirement should be higher than now)*

Within this Australian based international pathway learning environment, students general identified a teacher who is helping and friendly as a good teacher, smiles and helps. During interviews with students the researcher observed that students enjoyed taking about these behavioural characteristics of a teacher and the written responses provided indicate a positive teacher interaction.

The next section will provide an analysis of student responses to the QTI behavioural scale of Understanding from within this study.

#### **4.4.3 Understanding**

The mean score derived from the quantitative data analysis for the Understanding behavioural scale was 3.21. Students within the Australian based international pathway learning environment surveyed in this study were asked to reflect and provide comments on a teacher who demonstrates understanding. Wubbels and Brekelmans (2005) describes a teacher who demonstrates the Understanding scale as one who: *'Listen with interest, empathize, show confidence and understanding, accept apologies, look for ways to settle differences, be patient, be open'*.

The group of student comments below provides an example of student responses to the Understanding scale from this study:

*Yan: the teacher gave me examples*

*Deep: understanding student problem when come late*

*Anish: student can know or realize the meaning of the lessons*

*Harris: ask the student question, give example*

*Fang: (lecturer B) - straight to the point, easy to understand.*

*Takes the time to fully understand the difficulties that students have.*

*Amin: the way they satisfied by asking questions*

*Adit: displays a lot of knowledge on a particular subject or Topic he/she is teaching, consideration*

*Alia: listen to my words*

*Hafiz: listen to you and then help you, they give you time and talk*

*Ahmad: can tolerate a problems that faced by student*

*Seto: consideration*

*Priya: When they nod their head and smile.*

*Li: The teacher will explain with simple word that's make we easy to understand*

*Sofia: Some lecturers are very understanding. The understanding they provide show are good. They click with you.*

*WeiWei: can tolerate a problems that faced by student*

In general, students from the sample population responded to the Understanding behavioural scale by indicate that a teacher who has understanding is tolerant, listens, takes time to solve problems and uses examples. It is interesting to note that a sense of compassion and acceptance are also associated with the scale of Understanding by the respondents. Of interest, one particular student (Wei Wei) responded with language that supports the oppositional nature of the Admonishing scale to the Understanding scale in the circumplex model of the QTI.

The next section will provide an analysis of student responses to the QTI behavioural scale of Student Freedom/Responsibility from within this study.

#### **4.4.4 Student Responsibility/Freedom**

The mean score for the Student Responsibility/Freedom behavioural scale was 2.54.

Students from the sample population were asked to provide feedback on behavioural attributes of a teacher who allows student responsibility and freedom. Khine and Lourdusamy (2006) describe a teacher who displays the behaviour of Student Responsibility/Freedom as one who gives students opportunities and allows them to assume responsibilities for their own activities.

The majority of student responses reflected the language used in literature to describe the Student Responsibility/Freedom behavioural scale of the QTI, with a representative sample of student provided below:

*Yan: I can choos the topic which I like to talk*

*Fatima: Allow us to express our opinion*

*Iman: duties that student must do. Freedom*

*Adit: Let the student do whatever they want but must obey certain rule*

*Boniface: Interaction feely with teacher*

*Mira: some teacher give a choise to make an assignment topic*

*Amin: Call, teachers by their name do the homework at home*

*Deep: give much time for break time*

*Anish: group work, got to WC*

*Patrick: Teachers who trust students.*

*Mohammed: Put trust on students and give students chance to learn self-discipline.*

*Julius: one who trusts the work of students to be handed in on time as well as allows them to think out of the box in major projects.*

*Titus: Freedom is when teacher gives students an opporotunity to decide their own path, eg. decision to take not or not Responsiblity is when students must complete their assessment at time or with the right way*

*Harris: A person who does not spoon feed everything to the student and let the students learn from their own mistakes but motivating the student in the process*

*Fatuma: Democratic teacher.*

*Wasim: during the class time make student feel free to ask and do not talk not relevent things too much (a little bit of it is making class fresh and fun)*

*Peng: A person who would give advise towards the student, and allows them to have their freedom providing they perform on the studies.*

*Violet: Freedom is when teacher gives students an opporotunity to decide their own path, eg. decision to take not or not  
Responsiblity is when students must complete their assessment at time or with the right way*

*Kefah: allows students to discuss.*

*Flora: They would tell you what is expected of you, as well as how to get about acheiving it and then leave to work on it, thus providing you with freedom of action as well as responsibility for actions.*

*Tran: A person who does not spoon feed everything to the student and let the students learn from their own mistakes but motivating the student in the process.*

*Jun:well motivated teacher and accountable*

*Min: good*

*Mehul: freedom to discuss and make them responsibility to their class*

*Deep: Freedom of speech*

*Grace: easy to communicate with the teacher*

*Geet: teacher should talk in polite and happy mood.he should bring students who are weak in studies at front.*

*Irfan: Make sure the rules in class! do not bother others!*

*Nadeem: Allowing responsibility is a good thing in learning and so is freedom, but it depends on what kind of freedom. The teacher shouldn't be too strict either but should check that the freedom they allow is beneficial for the students learning and growth. Not something that will lead the student on the wrong course of things.*

A comment by *Geet* suggests that a teacher allowing Student Responsibility/Freedom is happy and encourages student participation by supporting weaker students, while *Irfan* refers to setting rules as an aspect of a learning environment in which there is student responsibility or freedom, and clarifies that these rules are to do with allowing a class to settle down so that students are not bothered. *Nadeem* provides a response which reaffirms the opposite relationship that exists between the Student Responsibility/Freedom and Strict scales on the circumplex model of the QTI.

Most student comments suggest a teacher who allows student responsibility and freedom is one who allows the expression of freedom, creates trust, allows student autonomy and creates a more informal environment in where responsibility is incumbent on the student.

The next section will provide an analysis of student responses to the QTI behavioural scale of Uncertain from within this study.

#### 4.4.5 Uncertain

The mean score for the Uncertain behavioural scale generated from the quantitative data analysis was 0.98. Wubbles (1993) described the uncertain teacher as one who “behaves in an uncertain manner and keeps a low profile”.

A majority of student responses from within this study were centred on the teacher’s lack of content knowledge, doubt, and hesitation as an expression of uncertainty. Some of these responses have been provided below:

*Yan: The teacher is in doubt what to teach and not too sure*

*Adit: not enough knowledge about the context of the subject*

*Mira: being shy*

*Deep: cant control all students/not sure what students are doing*

*Fang: Don’t answer student any Q*

*Iman: not able to pre-empt the question*

*Harris: when the teacher be asked by students and the teacher uncertain answered and just leave it wth word wrong question*

*Fatima: read the lecture note*

*Anish: no future information*

*Ming: not able to pre-empt the question*

*Mohammed: When the teacher is unable to answer our question related to the topic*

Other students reflected on the classroom created by a teacher who is uncertain, and the nonverbal communications of an uncertain teacher. Student comments which reflect this include:

*Sofia: Sometimes the classroom is too noisy*

*Li: Don't go to class in time*

*Min: (chinese text) do not concent on the student result, to neglect the weak student*

*Boniface: panicky*

*Priya: speaking style*

*Seto: Sivering voice*

*Jun: body language*

Responses from students within the sample population of the Australian based international pathway learning environment appear to have used similar language to describe Uncertain teacher.

The next section will provide an analysis of student responses to the QTI behavioural scale of Dissatisfied from within this study.

#### **4.4.6 Dissatisfied**

The mean score for the Dissatisfied behavioural scale was 0.88. This study collected qualitative data from students within the sample population based upon their perceptions of a teacher who is dissatisfied. Khine and Lourdusamy (2006) describe the QTI behavioural scale of Dissatisfied as the “extent to which teacher shows ‘unhappiness/dissatisfaction with student’.

Typical responses from students within the Australian based international pathway learning environment to a Dissatisfied teacher included:

*Fatuma: Hard to communicate.*

*Patrick: Teachers who never care about students not only about their studying but also their inside feeling.*

*Peng: A person who would tell a student where they have gone wrong, and not done what the teacher has asked that person to do.*

*Seto: Unable to solve students' questions and problems.*

*Flora: One who cannot get his message(study material) to his/her students.*

*Min: do not care students can they catch up with the progress or not.*

*Nadeem: Would be one that doesn't give much effort to what he/she does, doesn't really care about the students and could be due to a number of reasons, maybe little salary.*

*Mehul: only care to finish the class*

*Irfan: In lecture ,there are no interesting ,so boring teacher.*

Some students responded that a Dissatisfied teacher displays dissatisfaction by non-verbal actions:

*Deep: Is when they shake their head and have a stern look on their face.*

*Lei: shake their head*

*Priya: not happy*

Other students reflected on the dissatisfied teacher as one who expressed dissatisfaction by not helping or not being friendly. Student comments included:

*Fang: (lecturer C) - expect student to understand while she did not even explain anything all all due to that matter.*

*Harris: some lecturer don't explain word which is I can't understand*

*Julius: one whose students performs drastically badly in all fields*

Of interest was that *Julius's* response suggests that a student's performance is related to the dissatisfaction of a teacher.

A few students also associated a dissatisfied teacher with traits which are used to describe the adjacent scales of Admonishing and Uncertain:

*Min: he gave warning of importance of the subject*

*Adit: anger. Sadness. Unhappy. Bad facial expression.*

*Iman: when someone not listen to them; anger, not show the anger but might effect mark for exams, test, assignment, etc*

*Joseph: did not do homework. Anger.*

*Violet: A teacher who cannot explain the material very well and being too strict*

Some students described a Dissatisfied teacher as not having the qualities described in the opposite behavioural scales of Leadership and Understanding:

*Wasim: talk so much during the class and teacher who cant control students and feel discriminated*

*Tran: A person who lacks enthusiasm in teaching.*

*Jun: a low motivated*

*Kefah: does not listen to students*

*Geet: he is a teacher who doesnt understand his students.he doesnt explore their desires.*

The next section will present student responses to the QTI behavioural scale of Admonishing from within this study.

#### **4.4.7 Admonishing**

The mean score for the Admonishing behavioural scale was 0.80. The Wubbels

model for teacher interpersonal behaviour (as cited in Fisher & Rickards, 1998) describes the behaviour of the Admonishing scale as where a teacher gets angry, irritated, forbids, corrects and punishes students.

Limited student responses were received against the Admonishing scale. Representative student responses are provided below:

*Mira: never gives you time to explain, easily gets upset/angry*

*Yan: some lecture look the structure or gramer we use and they mark it. So I loss my mark because of that.*

*Grace: This is shown when the teacher doesn't accept the views from students, intolerance, inconsiderate*

*Priya and Sofia: not accepting*

*Lewis: not listening to your comment*

*Alia: Is when they just go on and on and if they don't ask "is that okay", They wouldn't care if the student looks blank.*

*Lei: didn't listen to any excuse*

*Flora: do not listen to excuse*

*Fang: (lecturer C) - when questions is asked, always delayed and answer without patients*

*Peng: do want to listen for any excuse. When ask question they not help but scold the student*

*Patrick: not willing to accept idea*

Few students responded to the Admonishing scale, and those that did responded typically did not reflect on what an Admonishing teacher is, but rather reflected on what an Admonishing teacher is not. This statement is supported by the researcher's observation during interviews which formed part of the pilot study (see section 3.8.2), where students engaged less with the researcher on negative items, and where students expressed concerns with commenting on negative teacher aspects, which led to items of the Admonishing scale being modified.

The next section will provide an analysis of student responses to the QTI behavioural scale of Strict from within this study.

#### 4.4.8 Strict

The mean score for the Strict behavioural scale was 2.16. Wubbels and Brekelmans (2005) describe a teacher representing the Strict behavioural scale of the QTI as one who judges, checks, sets rules, keeps a tight rein and gets a class silent.

When students within the Australian based international pathway learning environment were asked to reflect on their Strict of a strict teacher, there were three groupings of student responses.

The majority of student responses describe a Strict teacher as one who controls, sets rules, controls, gives hard tests/marks hard.

*Yan: During class hes very strict and concern about student achievement*

*Min: Controlling*

*Hafiz: Control student in class and to make sure they learn what the teacher have taught*

*Ahmad: Strict teachers usually are not friendly, would not let mischieves and noise in class*

*Peng: well a person who makes sure decipline is kept in the class, and students complete all their work.*

*Violet: A teacher who is very discipline in every aspect, even a very small aspect*

*Kefah: does not extend assignments*

*Flora: Amiable but firm.*

*Amann: means fair*

*Jun: a no nonsense character*

*Julius: one who emphasizes on hardwork and completion of assignments as well as passing exams.*

*Min: Check hw detaily and have follow the progress of group assignment*

*Mehul: require strict rules in class and high responbility.*

*Irfan: NO talking in class, ignore student asking question.*

*Geet: he must working hard enough in helping the students to fulfill their dreams.*

*Patrick: Who always check students' homework and often tell how bad a student's future will be if she or he does not do the homework. By doing that I think can make students feel doing homework pretty important.*

*Grace: Homework must be handed in before a certain time*

*Mira: Not allowed to drink in class*

*Lei: to much rule from teacher such as can't eat chocolate, drink coke in class*

*Alia: strict marking, keep an eye on whether we are doing our work*

*Ming: not understand student and give poor mark/result to students*

*Joseph: rough behaviour. Not giving enough ,marks*

*WeiWei: english problem related to mark given (good english don't mean know the subject)*

A number of student comments were linked to the adjacent scale of Admonishing. Examples of student comments which provide evidence towards the relative proximity with the Admonishing scale include:

*Priya: strict≠mean*

*Wasim: they treat students not nicely*

*Mohammed: Is unpopular among students and usually make the classes dull.*

*Nadeem: Would be one that doesn't give the student a chance to express themselves or acts in such a manor that students find interacting with them unbearable and uncomfortable. It might make the students be scared of him/her and students can't gain his/her trust nor approval.*

One student comment provides evidence that strengthens the location of the Strict scale opposite to the positive behavioural scale of Student Freedom/Responsibility.

*Tran: A person who does everything by the book and limits student freedom.*

Another student commented indicated that an environment in which there was a strict teacher would be beneficial to this particular students learning;

*Fatuma: He/She may be more helpful in my study.*

Student responses reflect a teacher who sets rules, controls, and gives hard tests/marks hard. Against the scale of Strict there were two main groupings of student responses. The first group reflects the scale descriptors used in literature (Table 2.14) in which a Strict teacher is focused upon controlling, checking and maintain silence within the class.

The next section of this chapter will explore the analysis of quantitative student data using the modified QTI behavioural scale items within the IQTI as described in Stage IV of the methodology of this research.

#### **4.5 QTI quantitative data – main study**

Quantitative student data was collected during the main component of this study (Stage IV of the research methodology) using the *International Questionnaire on Teacher Interaction* (IQTI).

Quantitative data collected from students within the Australian based international pathway learning environment was analysed to allow for a direct comparison to previous studies. Mean scores for each of the eight behavioural scales of the QTI and the seven-item ‘*attitude to class*’ scale based on the TOSRA (Table 4.12 – next page) were calculated to provide data for further validity and reliability analysis. Using the quantitative student data it is possible to test the internal consistency of student responses to the items of each of the eight QTI behavioural scales.

*Table 4.12: QTI and Attitude scale mean scores*

Scales	Mean Score
Leadership	3.12
Helping/Friendly	3.06
Understanding	3.21
Student Responsibility/Freedom	2.54
Uncertain	0.98
Dissatisfied	0.88
Admonishing	0.80
Strict	2.16
Attitude	2.36

*QTI Scale n=1358 students, Attitude n=1353 students*

#### 4.5.1 Internal Consistency of the QTI and Attitude Scale

To test the reliability of the data the Cronbach's Alpha Reliability Coefficient (Cronbach, 1951) was employed. The alpha reliability value indicates the degree in which the items within the same scale are responded to by students, providing a measure of internal consistency.

*Table 4.13: Internal Consistency of the QTI and Attitude Scales*

Scales	Unit of Analysis	Alpha Reliability
Leadership	Individual	0.92
Helping/Friendly	Individual	0.92
Understanding	Individual	0.93
Student Responsibility/Freedom	Individual	0.89
Uncertain	Individual	0.96
Dissatisfied	Individual	0.94
Admonishing	Individual	0.96
Strict	Individual	0.85
Attitude	Individual	0.74

*QTI Scale n=1358 students, Attitude n=1353 students*

In Table 4.13 it can be observed that the internal consistency value for each of the eight (8) behavioural scales of the QTI ranged from 0.85 to 0.96. It is noted that

these reliability values for QTI behavioural scales recorded in this study fit within Nunnally's (1978) acceptable level of reliability and are also reflective of previous study findings (Wubbels et. al., 1991; Wubbels & Levy 1991; 1993).

The alpha reliability values presented for each of the behavioural scale of the QTI strongly supports the internal consistency of student responses when using the modified items of the Australian version of the QTI within the IQTI tool. Furthermore, a reliability value of 0.74 was recorded for the seven-item '*attitude to class*' scale based on the TOSRA, and it is noted that this reflects similar reliability values reported in previous studies (Henderson, 1995; Henderson, Fisher & Fraser, 1998).

The strong reliability value for the '*attitude to class*' scale when used in the study also represents a high level of internal consistency in student responses to the attitude scale as a component of the IQTI tool. According to Henderson (1995) the reliability for this scale when the student is the unit of analysis is 0.68, and in 1998 Henderson, Fisher and Fraser found an alpha reliability value of 0.78 for the seven-item "*attitude to class*" instrument with the individual student as the unit of analysis.

It is therefore suggested that the alpha reliability for each of the QTI behavioural scales and the '*attitude to class*' scale derived from the TOSRA used in this study is valid, and that the value are within acceptable limits for further use and interpretation.

#### **4.5.2 Interscale Correlations of the QTI**

The circumplex nature of the interpersonal behaviour model is supported when there is highest correlation amongst adjacent scales and lowest, at times negatively correlated, with scales on the opposite side of the circumplex model (Wubbels, Brekelmans and Hooymayers, 1991).

Table 4.14, on the next page, presents the interscale correlation information against the scale of Leadership. This information suggests that a significant ( $p < 0.01$ ) correlation exists between most scales except for Helping/Friendly and Strict,

Understanding and Strict, Responsibility and Dissatisfied, and Responsibility and Admonishing.

*Table 4.14: QTI Interscale Correlations for One Unit of Analysis of the IQTI*

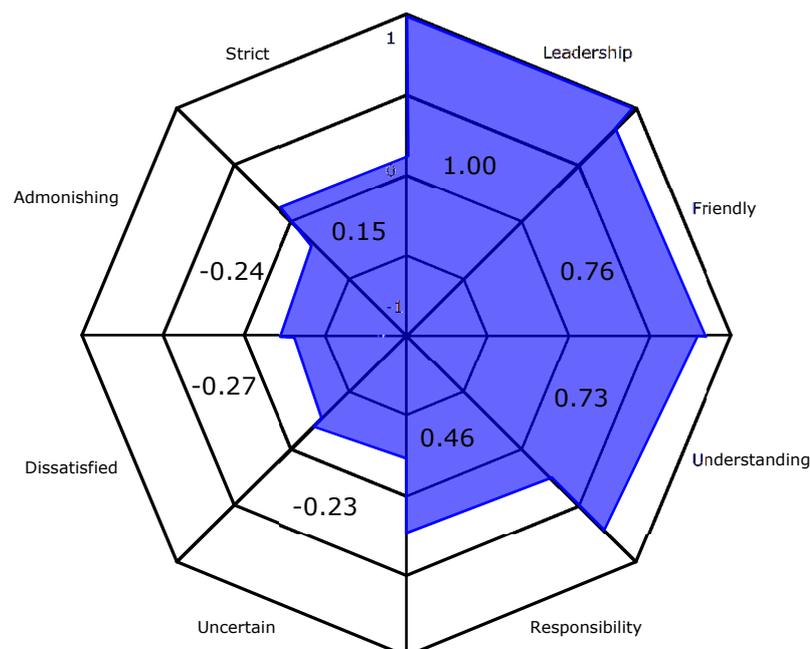
Scales	DC	CD	CS	SC	SO	OS	OD	DO
Leadership (DC)	1.00	0.76**	0.73**	0.46**	-0.23**	-0.27**	-0.24**	0.15**
Helping/Friendly (CD)		1.00	0.82**	0.59**	-0.17**	-0.26**	-0.29**	0.04
Understanding (CS)			1.00	0.56**	-0.20**	-0.32**	-0.35**	0.04
Student Responsibility/Freedom (SC)				1.00	0.15**	0.00	-0.04	0.09**
Uncertain (SO)					1.00	0.74**	0.68**	0.27**
Dissatisfied (OS)						1.00	0.81**	0.33**
Admonishing (OD)							1.00	0.40**
Strict (DO)								1.00

*Pearson Correlation values*

*\*\* Correlation is significant at the 0.01 level (2-tailed).*

*Listwise total n=1358*

Figure 4.2 illustrates the interscale correlations using the quantitative student data from this study with the Leadership scale of the QTI as the primary reference point.



*Figure 4.2: Circumplex model using interscale correlations based upon the Leadership scale of the QTI using quantitative data from the main study*

It is observed in Figure 4.2 on the previous page, that the correlation between scales decreases as you move away from its origin (Leadership scale), and that those scales opposite are negatively correlated (or at least have the lowest correlation). Those scales adjacent to the Leadership scale are positively correlated, which decrease in correlation as you move away from the original scale, and increase in correlation value back to the original scale. This observation again supports the circumplex nature of the model.

The circumplex relationships identified is consistent with the original circumplex model (Wubbels, Créton and Hooymayers, 1985) and subsequent research findings (Fisher, Henderson & Fraser, 1995, Koul & Fisher, 2004).

The next section of chapter four will present qualitative student data collected during the study based upon the seven item 'attitude to class' scale derived from the TOSRA.

#### **4.6 Attitude qualitative data - main study**

Three qualitative questions relating to attitude and intent were asked of students within the Australian based international pathway learning environment:

- “*What do you enjoy about your studies?*”.
- “*Why did you study at an International College?*”
- “*What do you intend to do after your studies?*”

These three questions will be used to present qualitative student data within this section of the thesis.

##### ***Student Enjoyment***

Student attitude to class has been positively associated with teacher-student interpersonal behaviour (Fraser & Lee, 2009).

To collect qualitative student data in respect to attitude, students were asked:

- “*What do you enjoy about your studies?*”

The researcher’s intention for this question was to make associations with terminology and descriptors items from the TOSRA scale, and secondly to identify associations between student perceptions of teacher-student interpersonal behaviour within the international pathway learning environment and teacher-student interactions.

Some student comments supported the item descriptions provided within the ‘*attitude to class*’ instrument.

*Hafiz: after realising answers of questions i don't know , i feel achieved*

*Yan: The learning process itself and knowing that this will lead to a positive outcome in the future.*

Other student comments linked dynamics of teacher-student interpersonal behaviour and effect on student ‘attitude’:

*Anish: when teacher teaches us in a happy and jolly mood.*

Student appreciation for technology rich environments were also reflected upon as factor within the classroom which resulted in enjoyment:

*Tran: projectors*

It is also interesting to observe that student’s responses to this question were varied, and that some responses regarding student enjoyment were directly related to teacher behaviour. Other responses evolved from students preferred learning styles and sense of achievement in “*seeking knowledge*”, “*realising answers*” and feeling “*achieved*”.

The following list provides some of the student comments relating to the enjoyment of their studies:

*Fatuma: Learn new knowledge that I didn't know before.*

*Patrick: the interesting parts come from the "boring" part of information of the context.*

*Peng: that is i can study by my self and if i have any problems i can sort it out with the teacher.*

*Violet: when I get a teacher who can explain the material very well and also be friendly*

*Muhammad: The process of seeking knowledge and the way to work as a group with the others from different countries.*

*Flora: I enjoy the practical aspects.*

*Amann: quite ok*

*Jun: a standard curriculum -what is taught is what is examined.*

*Julius: i get to learn more and more each day through examples and projects and this makes me more knowledgeable especially since nowadays 'Education is the key to life'.*

*Min: class for 2 days only*

*Nadeem: My studies are interesting and pretty challenging too, I enjoy the fact that I need to put a lot of effort even though it's demanding but with good results at the end and me gaining knowledge on how to solve some of the problems in the present world using my education/ what I learn then it's definitely worth the learning.*

*Mehul: SOSO....*

*Irfan: my likely major ,*

### ***Student Intent***

In working within the Australian based international pathway education environment, the researcher observed that a student's intent to study appeared to be related to their motivation and attitude to study.

The researcher observed that those students with a clear ambition and how to achieve that ambition appeared motivated, had a positive attitude to study and tended to achieve good results. Some students appeared financially capable and wished to achieve their own ambitions, while others students were under great pressure from

their communities to achieve a qualification that will lead to a better outcome for their community. Some students were there for the experience, some for an overseas qualification and some expressed intent to settle in Australia. Kutieleh, Egege and Morgan (2003) suggested that on top of the large amounts of money international students have invested to undertake studies in Australia, they are also under cultural pressure to perform well by their families.

The researcher also observed that other students had a poor attitude to study. As a teacher and administrator, the researcher interacted with many students who were studying because they were told to by parents, or had failed to meet entry criteria of tertiary education providers in their home country or their university of preference. Some students even expressed that their parents would hope that the experience in study may help them ‘grow up’.

Previous research within the pathway environment has investigated student intent (Fiocco, 2006; Watty, 2007) for undertaking studies within the pathway education environment. The researcher sought to extrapolate meaning from observations made as an embedded participant observer and follow particular lines of enquiry (Fiocco, 2006) by asking participants two questions:

- “*Why did you study at an International College?*”
- “*What do you intend to do after your studies?*”

Against the first question ‘*Why did you study at an international college?*’ students presented three varying but interconnected reasons for studying at an Australian based international pathway college:

The most numerous student responses were related to gaining international experience and an international qualification. The next most numerous responses was that their pathway education would take them to a higher education qualification, and the smallest response group identified that their experience may lead to settlement in a new country. Some of these responses have been grouped below:

Examples of student responses which reflected the need for an international experience or internationally recognised qualification are provided below:

*Fatuma: To learn new things/knowledge in the different culture. open eyeshot.*

*Patrick: because I wanted to fit the direction which the whole world is heading to and to be some of the headed people in my country and then to be an outstanding one.*

*Wasim: i wondered whats there and i think it is going to be good experience to study here and i quite found it good too*

*Peng: benefits are good, and to obtain a international education for future benefits.*

*Violet: I want to get new experience in new ways of teaching, with different academic environment. Also to get international and world wide skills from my studies*

*Kefah: recognised*

*Mohammed: I want to improve my English and experience different cultures..*

*Flora: So that I can be independent of my family, and also because of the multicultural society present both in and out of the college.*

*Amann: experience*

*Jun: Cross multicultural environment will enable me interact well in business on multiraces and cultural environment*

*Julius: this is because i have a global advantage as i can work anywhere in the world.*

*Nadeem: I wanted to gain International recognition and of course good education, one of quality.*

*Mehul: YES, but the college should make more multiculture event*

Examples of student responses which reflected the need for an international experience or internationally recognised qualification:

*Tran: I believe this is the best path to get into a higher form of study. (e.g University)*

*Min: because I want to get into university as I have a bad result in high school*

*Irfan: BBA*

Examples of student responses which reflected the need to migrate to a new country:

*Geet: because i need to settle here. and for that, i need to have a degree that is accepted here quite easily.*

In general students were able to demonstrate a clear intent and awareness of their motivation for undertaking studies within an Australian based international pathway education provider.

The researcher also sought to explore students intent once they completed their studies at the Australian based international pathway providers by asking students “*What do you intend to do after your studies?*”.

It is the researcher’s own observation that even though settlement may be a future vision for some students; the reality is that only students gaining preferred qualifications of their new country would truly be able to pursue this possibility to resettle. The researcher has also observed that re-settlement to Australia is a long and complex process given the current migration avenues. A study by IDP (2011) found that “more than 60% of student’s desire permanent residency in Australia but only about 19% achieve it”.

Through the researcher’s direct experience in pathway education environments, it was observed that the nature of pathway environment promoted cultural awareness and openness towards multiculturalism. Students participating within this environment appeared to appreciate the positive influences of such experiences and environments in their future.

It was also observed that many of the students within the pathway environment comprehend the value of an overseas (Western) education on an international scale,

its relationship to gaining employment and the required awareness, acceptance and working knowledge of multiculturalism in an international community.

Examples of student responses grouped by employment prospects in overseas country included:

*Geet: after studies, i will do a job here in canada and visit my homeland ( PUNJAB ) once or twice a year.*

*Seto: Seek a job in Sydney.*

*Peng: HOPEFULLY get my PR and get a good job and be a good citizen of this country which i like a lot.*

*Violet: Find a job that suits my skill and probably stay in this country*

The following are representative student responses grouped by employment prospects without reference to country:

*Fatuma: Find a job, or pursue my studies.*

*Patrick: To do the job that I had been dreaming to do with the ability which I generated from what I studied.*

*Kefah: look for a job.*

*Amann: get a job and teach when getting old*

*Julius: i intend to gain viable experience in the field of my study then open up a firm of my choice as to gain competitive edge in the market as well as create employment.*

*Min: job relate to marketing*

*Nadeem: I would like to get a really good paying job in the field of which I study.*

*Mehul: work*

*Irfan: business manager*

*Jun: Establish a business empire*

Student responses grouped by intent to further study:

*Tran: Pursue a Bachelor's Degree in university.*

*Flora: I intend to follow-up with further studies, or get a job, or both.*

Student responses were focussed towards their future employment or study prospects. Students were more open in regards to their future plans with more students indicating that they intended to settle into a new country as a consequence of their studies and/or work.

#### 4.7 Attitude quantitative data – main study

In line with previous studies (Rickards, 1998) simple and multiple correlations were completed to describe student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment and student attitudinal outcomes.

A simple correlation ( $r$ ) allows for the interpretation of bivariate data between the QTI behavioural scales and the attitudinal outcome, while the multiple correlation analysis allows for the control of seven scales of the QTI while the determination of a regression weight ( $\beta$ ) between the attitudinal outcome and a single QTI scale is conducted. A two-tailed test has been completed to detect the possibility that a relationship may occur in both directions. Simple and multiple correlation data has been summarised in Table 4.12.

*Table 4.12: Associations between QTI scales and attitude using simple and multiple correlation values*

Scale	Attitude to class	
	$R$	$\beta$
Leadership	0.31**	0.11*
Helping/Friendly	0.33**	0.21*
Understanding	0.30**	0.00
Student Responsibility/Freedom	0.19**	0.03
Uncertain	-0.16**	-0.08*
Dissatisfied	-1.78**	-0.03
Admonishing	-0.17**	0.00
Strict	0.10	-0.01
Multiple $R$ Correlation		0.360**
$R^2$		0.130

\*\*Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

Attitude  $N=1353$

The Pearson correlation coefficient was used to calculate the  $r$  values by using bivariate data with a two tailed test of significance that excluded pairs pairwise.

With attitude as the dependent variable, and the eight behavioural scales of the QTI as the independent variable, a liner regression (enter method) was carried out in which the probability of F was entered at 0.05 and removed at 0.10 and cases of missing values were excluded list wise.

$R^2$  indicates that 13% of the variance in student attitude can be attributed to teacher-student interpersonal behaviour.

Simple correlation ( $r$ ) values suggest that seven out of the eight QTI behavioural scales recorded a significant relationship at  $p < 0.01$ . The scales of Leadership, Helping/Friendly, Understanding and Student Responsibility/Freedom provided positive associations, whilst Uncertain, Dissatisfied and Admonishing provided negative associations. Strict was the only scale not to provide a significant correlation.

When investigating the beta weightings three scales recorded a significant relationship ( $p < 0.05$ ) for the '*attitude to class*' scale. Significant positive associations were recorded with attitude against the scales of Leadership and Helping/Friendly and a significant negative association was recorded against the behavioural scale of Uncertain.

This data would suggest that that an increased '*attitude to class*' exists when teachers demonstrate positive behavioural traits associated with the QTI scales of Leadership and Helping/Friendly, and less of those characteristics representative of the scale Uncertain.

#### **4.8 Chapter Summary**

This chapter has presented the qualitative and quantitative student data collected during the pilot and main components of this study against the behavioural scales of the QTI and the '*attitude to class*' scale from the TOSRA.

Chapter five will now present the quantitative data analysis and qualitative data collected based upon the nine introductory questions of the IQTI which form the variables of thesis study. Chapter six will summarise outcomes from the quantitative and qualitative information and draw upon literature to formulate study findings. Chapter seven will provide concluding remarks and outcomes of the study.

## Chapter Five

### Analysis of variables

不闻不若闻之，闻之不若见之，见之不若知之，知之不若行之。

“Tell me and I forget, Show me and I remember, Involve me  
and I understand.”

(Chinese Proverb: English translation)

#### 5.1 Introduction

This chapter will present the analysis of grouped quantitative student data collected during the main component of this study. As described in Stage V of the research methodology (see section 3.8.9), quantitative data has been grouped based upon the nine introductory questions of the IQTI described in section 3.8.3 of this study.

Individual student responses were collated to form mean scores based upon groupings of the nine introductory questions. Grouped mean scores were then used to investigate associations between student perceptions of the Australian based international pathway learning environment against the eight behavioural scales of the QTI. Pearson's Correlation coefficient was also used to determine the associations between student responses and the variables of this study.

Qualitative data was not sought from students against each of the introductory questions of the IQTI, as these variables (either fixed by a numerical value or had limited groupings) were used for the sole purpose of investigating associations within the quantitative student data.

The researcher did seek to gain qualitative information from students to support the outcomes of the quantitative data analysis based upon the introductory questions of the IQTI (Stage VI of the research methodology – see section 3.8.10). Feedback from students was gained using seven qualitative questions. These questions were collected by email using 337 email addresses provided to the researcher by students who participated in the quantitative data collection using the online IQTI tool. As described within the methodology chapter of this thesis, student responses were

collected in which a sample of verbatim student comments has been provided and discussed within this chapter.

Auto-ethnographic comments and observations made by the researcher have also been included. The researcher, having an immersive direct lived and worked experience within the international pathway learning environment, provides a valuable and unique insight in the form of the qualitative data in this study.

Literature discussed within this study has identified that language (Koul & Fisher, 2005), culture (Nguyen, 2008), sex (Rickards, 1998), age (den Brok, Levy, Wubbels & Rodriguez, 2003), subject (Telli, Cakiroglu and den Brok, 2006) and student attitude (den Brok, Brekelmans & Mainhard, 2010) may influence student perception of teacher-student interpersonal behaviour.

As presented in this chapter, a number of trends emerge from the analysis of the quantitative data based upon the grouping of the nine introductory questions of the IQTI. These trends guide the subsequent qualitative data collection.

## **5.2 Quantitative data analysis - Cultural Background variables**

Quantitative student data was grouped using the first three introductory questions from the IQTI against the study variable of Cultural Background:

*Item 1: What is your Primary Language spoken at home?*

*Item 2: What is your Country of Birth?*

*Item 3: What is your Country of Citizenship?*

From the 1358 valid student responses over 70 languages were recorded, with over 65 countries of birth and 65 countries of citizenship.

Primary Language was grouped into nine categories of 'Arabic', 'African', 'Asian/China', 'Asian/India', 'Asian' (Asian language not Chinese or Indian), 'English', 'European', 'French' and 'Other' (not belonging to any other category).

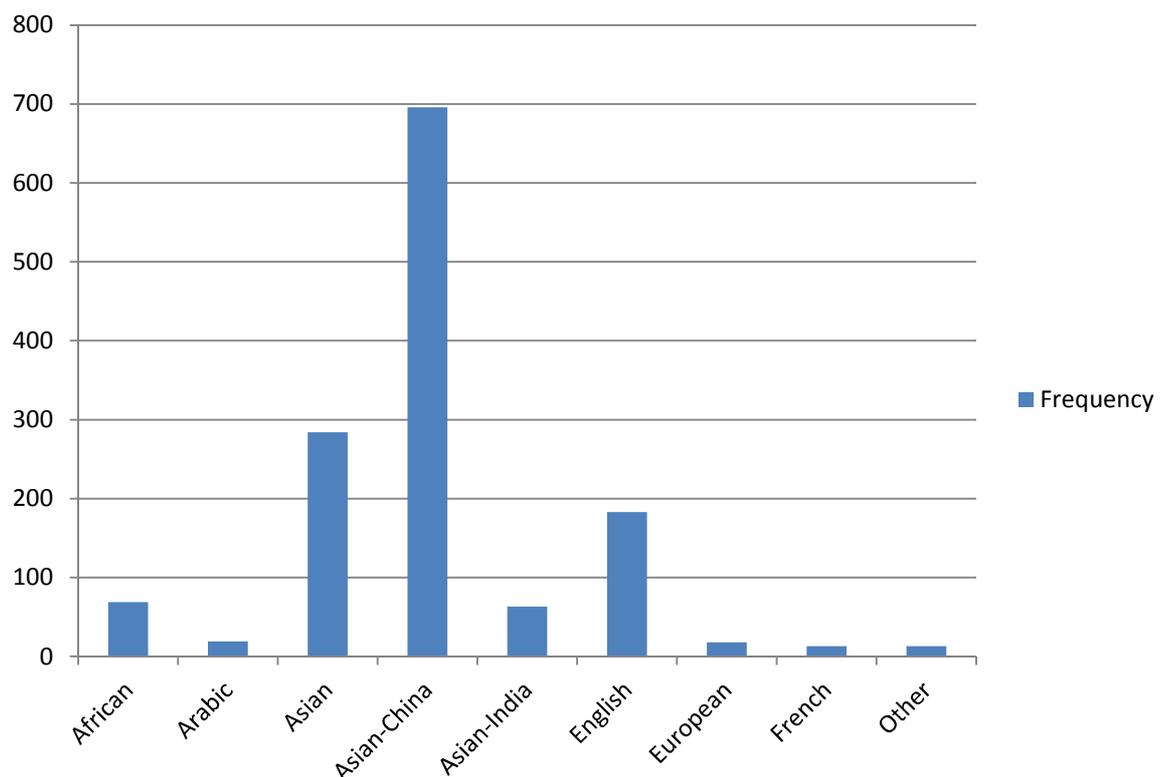
Country of Birth was grouped into ten categories of 'Africa', 'Americas',

‘Australia/NZ’, ‘Europe’, ‘Asia/India’, ‘Asia/China’, ‘Southern Asia’, ‘Northern Asia’, ‘Middle East’ and ‘Other’. The additional category gave the opportunity to distribute an increase in ‘Asian’ responses into ‘Southern Asia’ and ‘Northern Asia’. Country of Citizenship was categorised into nine groups of ‘Africa’, ‘Americas’, ‘Australia/NZ’, ‘Europe’, ‘Asia/India’, ‘Asia/China’, ‘Asia/Indonesia’, ‘Middle East’ and ‘Other’. In this category grouping ‘Asia’ became ‘Asia/Indonesia’ due to the proportional increase in student responses relating to Indonesia.

The groupings created within each variable were based upon a combination of geographic region, researcher knowledge of the student group, and derived from quantitative data received.

### ***Primary Language***

Based on the nine categories of Primary Language a frequency diagram (Figure 5.1) was generated based on student responses.



*Figure 5.1: Frequency distribution based upon Primary Language*

69 students (5%) identified as ‘African’, 19 (1.4%) as ‘Arabic’, 284 (21%) as ‘Asian’, 696 (51.1%) as ‘Asian/China’, 63 (4.7%) as ‘Asian/India’, 183 (13.4%) as

'English', 18 (1.3%) as 'European', 13 (1.3%) as 'French', and 13 (0.9%) as 'Other'. Based upon researcher experience this frequency composition appeared representative of the Australian-based international pathway learning environment.

Table 5.1 provides summary information of the ANOVA statistical analysis of student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment for the eight scales of the QTI and the variable of Primary Language.

*Table 5.1: ANOVA analysis of the eight scales of the QTI based upon Primary Language*

Scale	Grouped Mean Scores – Primary Language									F Value
	African	Arabic	Asian	Asian/China	Asian/India	English	European	French	Other	
Leadership	3.23	2.81	3.05	3.10	3.28	3.23	3.11	3.33	2.92	2.08***
Helping/ Friendly	3.07	2.81	2.95	3.14	3.10	2.96	3.23	2.86	2.97	2.43***
Understanding	3.22	2.86	3.11	3.26	3.19	3.18	3.29	3.21	3.06	1.57
Student Responsibility/ Freedom	2.23	2.17	2.45	2.73	2.46	2.19	2.56	1.89	2.19	10.38*
Uncertain	0.64	1.07	0.91	1.15	0.64	0.67	1.26	0.72	0.88	6.18*
Dissatisfied	0.77	1.11	0.87	0.94	0.71	0.76	1.25	0.60	0.76	1.43
Admonishing	0.76	0.80	0.76	0.83	0.77	0.75	0.87	0.51	0.65	0.36
Strict	2.54	2.05	2.13	2.11	2.29	2.26	2.31	2.13	1.55	2.92**
N	69	19	284	696	63	183	18	13	13	

\* $p < 0.001$

\*\* $p < 0.005$

\*\*\* $p < 0.05$

Total  $n = 1358$

Statistical significance was recorded in five of the mean scores of the behavioural scales of Leadership and Helping/Friendly ( $p < 0.05$ ), Student Responsibility/Freedom and Uncertain ( $p < 0.001$ ) and Strict ( $p < 0.005$ ) when grouped into the nine categories of Primary Language.

To assist in the interpretation of this data, the grouped mean scores for each scale of the QTI based upon the nine Primary Language groupings has been presented in Figure 5.2 on the next page.

From Figure 5.2 it can be seen that students from an 'Arabic' Primary Language were inclined to rate their teacher lower against the positive behaviour scales of Leadership, Helping/Friendly and Understanding, and higher against the negative scales of Uncertain, Dissatisfied and Admonishing.

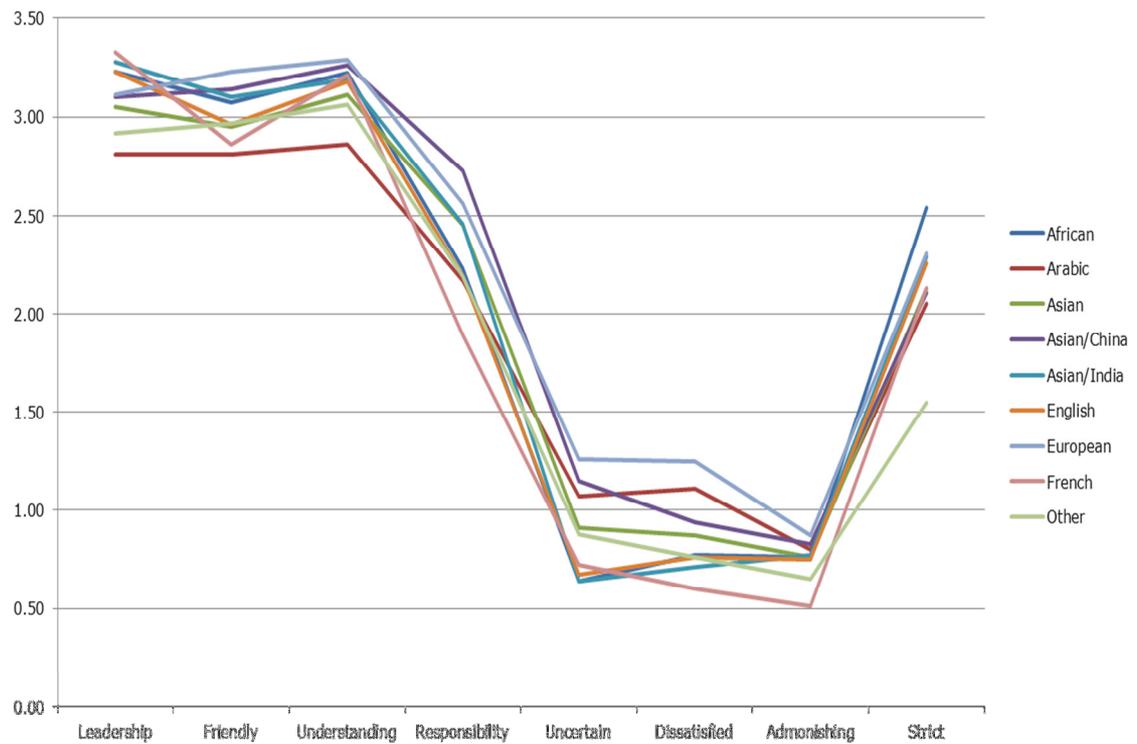


Figure 5.2: Grouped mean scores for each scale of the QTI based upon Primary Language

'European' and 'Asia/China' student groups appeared to rate their teacher higher across all scales except for Strict, whilst 'African' students seemed to rate their teachers the highest against the Strict scale.

The difference between the maximum and minimum mean scores appears to be greatest when viewing the scales of Student Responsibility/Freedom and Strict; with a range between the minimum and maximum grouped mean score of 0.84 and 0.99 respectively for the these two behavioural scales.

QTI behavioural scales which have reported significance based upon Primary Language groupings will be further examined, using a Cronbach's alpha reliability coefficient. Values were calculated for each of the minimum and maximum Primary

Language groups where the data analysis indicated significance against one or more of the QTI behavioural scales. This information will be presented in order of highest to lowest significance reported for each QTI behavioural scale.

### ***Primary Language versus Student Responsibility/Freedom***

The scale of Student Responsibility/Freedom recorded significance at  $p < 0.001$ . This indicates that the chance of an association between Primary Language groupings and the behavioural scale of Student Responsibility/Freedom being wrong is less than one in one thousand.

The total mean score for the Student Responsibility/Freedom scale was 2.54. 'French' ( $n=13$ ) Primary Language rated their teacher lowest with 1.89, while students of an 'Asian/China' ( $n= 696$ ) Primary Language rated their teacher highest with 2.73 against the same scale. The range between the maximum and minimum grouped mean scores was 0.84. The remaining grouped mean scores ranged by only 0.39 from 2.17 to 2.56.

Using Cronbach's Alpha reliability coefficient, student responses to the items of the Student Responsibility/Freedom behavioural scale within the Primary Language group of 'French' and 'Asian/China' provided values of 0.73 and 0.90 respectively. This represents a high internal consistency of student responses to each of the items of the Student Responsibility/Freedom behavioural scale when grouped by Primary Language.

This quantitative student data suggests that 'French' language students perceived their teachers as providing the least amount of Student Responsibility/Freedom, and 'Asia/China' language students saw their teachers as providing the most amount of Student Responsibility/Freedom.

### ***Primary Language versus Uncertain***

The scale of Uncertain indicated a high significance ( $p < 0.001$ ) when student responses were grouped by Primary Language. This represents a 1 in every 1000 chance the association between the Uncertain behavioural scale and the Primary Language groupings occurred by accident.

The total mean score for the Uncertain behavioural scale was 0.98, with a range of 0.62 recorded between the maximum and minimum mean scores of the Primary Language groups. 'European' (n=18) language students providing the maximum mean score of 1.26, while 'African' (n=69) language students recorded the minimum mean score of 0.64. Remaining Primary Language grouped mean scores ranged between 0.64 and 1.16, a difference of 0.52 against the behavioural scale of Uncertain.

The output from the Cronbach's Alpha reliability coefficient for the 'European' language group was 0.97, and for the 'African' language group was 0.95. This information suggests that students responded to the items of the Uncertain behaviour scale in a similar way when grouped by Primary Language.

This quantitative data suggests that 'European' language students perceive their teachers as the most Uncertain whilst 'African' language students saw their teachers as the least Uncertain.

#### ***Primary Language versus Strict***

The scale of Strict recorded a significance value of 0.003 falling within the significance threshold of  $p < 0.005$ , a statistical indication that the chance of an association occurring due to chance being less 0.5%.

The total mean score for all students to the Strict behavioural scale was 2.16. The Strict scale was rated highest by students of an 'African' (n=69) Primary Language with a rating of 2.54, whilst students of 'Other' (n=13) Primary Language rated their teachers lowest with mean score of 1.55. A difference of 0.99 was recorded between these maximum and minimum scores. The remaining groups were recorded as having a mean score of between 2.05 and 2.31; a range of only 0.26.

An alpha reliability value of 0.65 indicated an adequate internal consistency for student responses to the items of the Strict scale when grouped into the 'African' Primary Language group. The Primary Language group of 'Other' recorded an alpha reliability value of 0.84 indicating a high internal consistency for student responses to the items of the Strict behavioural scale.

This quantitative data suggests that students whose Primary Language was 'African' perceived their teachers as the strictest, whilst students from the language group 'Other' saw their teachers as the least Strict within Australian based international pathway environment.

#### ***Primary Language versus Helping/Friendly***

The ANOVA analysis of the behavioural scale Helping/Friendly generated a significance value of 0.013 and has been recorded at the  $p < 0.05$  significance level, however it is also noted that this value is on the border of  $p < 0.01$  significance.

The total mean score for the QTI behavioural scale of Friendly/Helping was 3.06 with students identifying their Primary Language as 'Arabic' ( $n=19$ ) rating their teachers lowest against this scale with a rating of 2.81, whilst 'European' ( $n=18$ ) Primary Language students rated their teacher higher with a mean score of 3.23. A difference of 0.42 was recorded between the upper and lower mean scores. The remaining Primary Language groups provided mean scores between 2.86 and 3.10 against the behavioural scale of Helping/Friendly, representing a 0.24 difference between the remaining grouped means scores.

Alpha reliability values of 0.92 for 'Arabic' Primary Language and 0.91 for 'European' Primary Language were recorded which suggest students responded to the items of the Helping/Friendly behavioural scale in a similar way.

The quantitative student data suggests that 'Arabic' language students perceive their teachers as the least Helping and Friendly, whilst 'European' language students saw their teachers as the most Helping/Friendly.

#### ***Primary Language versus Leadership***

The Leadership scale recorded significance at 0.035 falling well within the  $p < 0.05$  significance threshold when student perceptions were grouped by Primary Language. This weak significance represents a better than one in twenty chance that an association exists, when the perceptions of students of the Leadership behavioural scale are grouped by Primary Language, than chance alone.

The total mean score for the Leadership behavioural scale was 3.12 with 'French' (n=13), 'Asia/India' (n=64), 'English' (n=183) and 'African' (n=69) students rating their teachers highest with mean scores of 3.33, 3.28 and 3.23 respectively. Students from an 'Arabic' (n=19) 'Primary Language' rated their teachers lowest against the Leadership scale with a mean score of 2.81. Mean scores of the remaining Primary Language groups ranged from 3.11 and 2.92.

Cronbach's alpha reliability coefficient was calculated for the four Primary Language groups of 'French', 'Asia/India', 'English', 'African' and 'Arabic' based on the behavioural scale of Leadership which presented values of 0.94, 0.94, 0.88, 0.90 and 0.77 for the respective groups. These reliability values indicate a high internal consistency within each of the identified Primary Language groups to the items of the QTI behavioural scale of Leadership.

The quantitative student data suggests that 'French', 'Asia/India', 'English' and 'African' students perceived their teachers as exhibiting more leadership behaviour, while 'Arabic' language students perceived their teachers as having the least leadership qualities.

The next section of this chapter will now present data on student perceptions of the Australian based international pathway learning environment based upon the ten groups of the variable Country of Birth.

### ***Country of Birth***

Based on the ten groupings of Country of Birth 16.8% identified as being born in 'Africa' (n=228), 0.4% from the 'Americas' (n=5), 1.2% from 'Australia/New Zealand' (n=16), 1.2% from 'Europe' (n=16), 6.6% from 'Asia/India' (n=90), 53.7% from 'Asia/China' (n=729), 15.9% from 'Southern Asia' (n=216), 1.0% from 'Northern Asia' (n=12), 1.0% from the 'Middle East' (n=14) and 2.3% from 'Other' (n=32) regions. These frequencies have been used to generate Figure 5.3 which is presented on the following page.

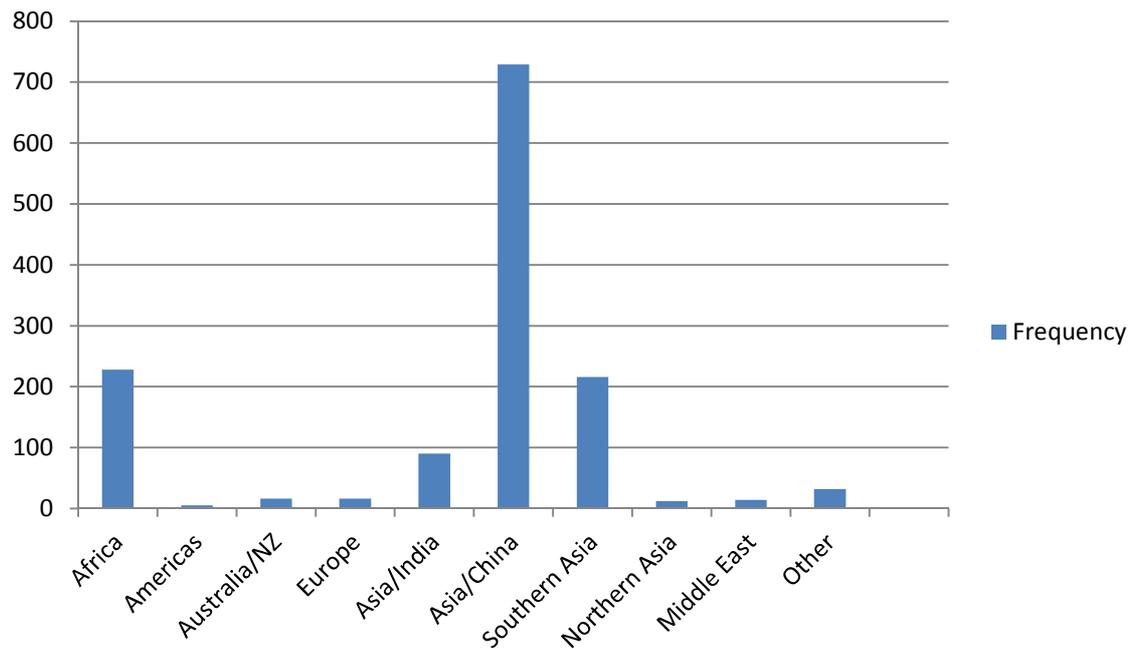


Figure 5.3: Frequency distribution based upon Country of Birth

Table 5.2 provides summary information of the statistical analysis for the eight scales of the QTI against the variable of Country of Birth. The table below includes mean score for each group of Country of Birth and the eight behavioural scales of the QTI. F and significance values complete the remaining data within the table.

Table 5.2: ANOVA analysis of the eight scales of the QTI based upon Country of Birth

Scale	Grouped Mean Scores – Country of Birth										F Value
	Africa	Americas	Australia/NZ	Europe	Asia/India	Asia/China	Southern-Asia	Northern-Asia	Middle East	Other	
Leadership	3.30	3.00	3.03	2.94	3.10	3.11	3.02	3.18	2.72	2.92	2.79**
Helping/Friendly	2.99	2.67	3.08	2.98	3.01	3.15	2.91	2.97	2.71	3.06	2.46***
Understanding	3.22	3.00	3.14	3.05	3.11	3.27	3.07	3.11	2.80	3.19	2.08****
Student Responsibility/Freedom	2.15	2.70	2.23	2.20	2.36	2.76	2.35	2.36	2.42	2.49	11.91*
Uncertain	0.51	1.50	0.42	1.15	0.72	1.20	0.85	1.06	1.32	0.88	10.33*
Dissatisfied	0.65	2.27	0.47	1.03	0.73	0.98	0.81	1.33	1.40	0.82	4.18*
Admonishing	0.70	2.37	0.17	0.76	0.72	0.87	0.69	1.06	1.07	0.49	3.13*
Strict	2.40	2.60	1.94	1.90	2.16	2.11	2.10	2.42	2.06	2.05	2.56***
N	228	5	16	16	90	729	216	12	14	32	

\* $p < 0.001$

Total  $n = 1358$

\*\* $p < 0.005$

\*\*\* $p < 0.01$

\*\*\*\* $p < 0.05$

There were varying significance levels recorded in all behavioural scales when student responses were grouped by Country of Birth. The behavioural scales of Student Responsibility/Freedom, Uncertain, Dissatisfied, and Admonishing reported significance at  $p < 0.001$ , the behavioural scale of Leadership at  $p < 0.005$ , Strict and Helping/Friendly behavioural scales at  $p < 0.01$  and the behavioural scale of Understanding at  $p < 0.05$ .

To assist in the interpretation of this information, Figure 5.4 has been created. Figure 5.4 presents the grouped mean scores for each of the eight behavioural scales of the QTI based upon the Country of Birth variable.

Using Figure 5.4, it can be observed that the scales of Leadership, Helping/Friendly and Understanding were responded to highest by students born in 'Africa', 'Asia/China' and 'Northern Asia'. 'Middle East' and 'Americas' students provided the lowest values against the same behavioural scales. The remaining grouped means scores appear to be relatively uniform for the same behavioural scales.

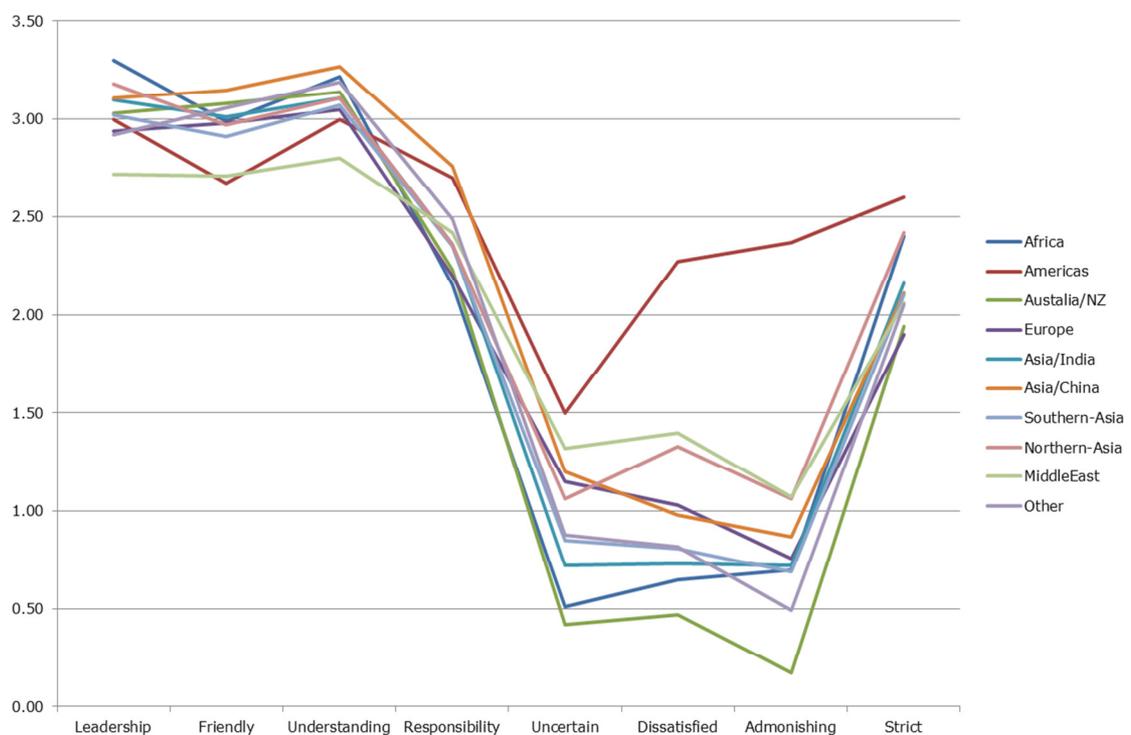


Figure 5.4: Grouped mean scores for each scale of the QTI based upon Country of Birth

Changes in the range of Country of Birth grouped mean scores appear to occur at the

scale of Student Responsibility/Freedom, with an increased range in grouped mean score at the behavioural scales of Uncertain, Dissatisfied and Admonishing. Against these three negative scales the Country of Birth grouping of 'Americas' consistently rates the highest and the grouping 'Australia/NZ' consistently rated the lowest. Against the Strict scale the 'Americas' group provided the highest grouped mean score, whilst the 'Europe' group provided the lowest value.

The next section of this chapter will now report on the QTI behavioural scales which recorded significance when grouped by Country of Birth. This information will be presented in order of highest to lowest significance reported for each QTI behavioural scale.

### ***Country of Birth versus Student Responsibility/Freedom***

A high significance ( $p < 0.001$ ) was recorded for the behavioural scale of Student Responsibility/Freedom when student data was grouped by Country of Birth. This represents a 1 in 1000 probability that an association between the groupings of Country of Birth and the behavioural scale of Student Responsibility/Freedom has occurred by chance.

The total mean score of the Student Responsibility/Freedom scale was 2.54 with students of Country of Birth groupings 'Asia/China' ( $n=729$ ) and 'Americas' ( $n=5$ ) providing maximum mean score of 2.76 and 2.70 respectively. Student of the 'Africa' ( $n=228$ ) grouping of Country of Birth rated their teachers lowest against the same scale with a mean score of 2.15. This represents a range of 0.61 between the maximum and minimum grouped mean scores. When these mean scores are excluded, the remaining group means scores reported values of between 2.20 to 2.49, representing a range of 0.29. Cronbach's alpha reliability values of 0.99, 0.91 and 0.82 were recorded for the maximum Country of Birth groupings of 'Americas' and 'Asia/China' and minimum group of 'Africa'.

The data analysis suggests that students born in 'Asia/China' and 'Americas' perceived their teachers the highest against the Student Responsibility/Freedom behavioural scale, whilst students born in 'Africa' perceived their teachers as providing the least Student Responsibility/Freedom within Australian based

international pathway environment.

### ***Country of Birth versus Uncertain***

A 99.9% confidence ( $p < 0.001$ ) level was recorded between students perception of the behavioural scale of Uncertain when grouped by Country of Birth.

A total mean score of 0.98 was recorded for the behavioural scale of Uncertain. When student responses were grouped by Country of Birth, the groupings of 'Americas' ( $n=5$ ) and 'Middle East' ( $n=14$ ) recording the maximum grouped mean scores of 1.50 and 1.32 respectively. Students of Country of Birth groupings 'Australia/NZ' ( $n=16$ ) and 'Africa' ( $n=228$ ) recorded the minimum mean scores of 0.42 and 0.51 respectively. The range between maximum and minimum Country of Birth grouped mean scores for the behavioural scale of Uncertain was 1.08. This range reduced to 0.48 for the remaining grouped mean scores when the maximum and minimum mean scores were excluded.

Using Cronbach's Alpha reliability coefficient values of 0.99, 0.89, 0.89 and 0.88 were recorded for 'Americas', 'Middle East', 'Africa' and 'Australia/NZ' respectively.

This information suggests that students born in the 'Americas' and 'Middle East' perceived their teachers as being the most Uncertain, whilst students born in the 'Australia/NZ' and 'Africa' saw their teachers as being the least Uncertain within Australian based international pathway environment.

### ***Country of Birth versus Dissatisfied***

A significance value of  $p < 0.001$  would indicate that an association between Country of Birth groupings and the behavioural scale of Dissatisfied occurring by chance is one in one thousand.

A total mean score of 0.90 was recorded for the scale of Dissatisfied. When grouped by Country of Birth a range of 1.80 existing between the maximum grouping mean score of 2.27 for 'Americas' ( $n=5$ ) and the minimum grouped mean score of 0.47 for 'Australia/NZ' ( $n=16$ ). In excluding these maximum and minimum grouping mean

scores a range of 0.75 (0.65 – 1.40) exists between the remaining grouped mean scores of Country of Birth.

Alpha reliability values of 0.99 and 0.90 were recorded for the Country of Birth groupings of 'Americas' and 'Australia/NZ' respectively.

This analysis suggests that students born in the 'Americas' perceived their teachers as being the most Dissatisfied, and students born in the 'Australia/NZ' saw their teachers as the least Dissatisfied within Australian based international pathway environment.

### ***Country of Birth versus Admonishing***

The scale of Admonishing also recorded a high level of significance ( $p < 0.001$ ) when student responses to the behavioural scale of Admonishing were grouped by Country of Birth.

The behavioural scale of Admonishing provided a total mean score of 0.80. Students belonging to the 'Americas' ( $n=5$ ) Country of Birth rated their teachers highest against this behavioural scale with a grouped mean score of 2.37, and students of the 'Australia/NZ' ( $n=16$ ) grouping rated their teachers lowest with a grouped mean score of 0.17. This represents a range of 2.20 between the maximum and minimum grouped mean scores. With these maximum and minimum grouped mean scores excluded, a more modest range of 0.38 (0.69 – 1.07) exists between the remaining Country of Birth grouped mean scores.

Cronbach's alpha reliability coefficient values 0.99 and 0.75 were recorded for the respective Country of Birth groupings of 'Americas' and 'Australia/NZ'. This indicates a high level of internal consistency in the responses of students to the items of the Admonishing behavioural scale.

The behavioural scale of Admonishing was rated highest by students born in the 'Americas' and lowest by students born in 'Australia/NZ' within the Australian based international pathway environment.

***Country of Birth versus Leadership***

A high significance ( $p < 0.005$ ) value was recorded against the scale of Leadership when data was grouped by Country of Birth.

The total mean score for the Leadership scale was 3.12. The Country of Birth grouping of 'Africa' ( $n=228$ ) and 'Northern Asia' ( $n=14$ ) provided the highest mean scores against the Leadership with 3.30 and 3.18 respectively. The 'Middle East' ( $n=14$ ) grouping of Country of Birth rated their teachers lowest against the Leadership scale with a mean score of 2.72. A range of 0.58 was recorded between these maximum and minimum grouped Country of Birth mean scores. In excluding the maximum and minimum mean scores, the remaining grouped mean scores was range between from 2.92 to 3.11; a difference of only 0.19.

Cronbach's alpha reliability gave values of 0.87, 0.90 and 0.70 were recorded against the 'Africa', 'Northern Asia' and 'Middle East' groupings of Country of Birth and the Leadership scale. These high internal consistency values indicate that students within each of these Country of Birth groupings responded to the items of the Leadership behavioural scale in a similar way.

This data suggests that students born in 'Africa' and 'Northern Asia' perceived their teachers as better leaders, whilst students born in the 'Middle East' saw their teachers as having these least amount of leadership within Australian based international pathway environment.

***Country of Birth versus Helping/Friendly***

A significance of  $p < 0.01$  was recorded for the QTI behavioural scale of Helping/Friendly when grouped by the variable of Country of Birth. This weak significance represents a 1 in 100 probability that an association exists based upon chance alone.

The total mean score for the Helping/Friendly behavioural scale was 3.06 with students of an 'Asia/China' ( $n=729$ ) Country of Birth rating their teachers highest against the scale with a group mean score of 3.15. Students of Country of Birth groupings of 'Americas' ( $n=5$ ) and 'Middle East' ( $n=14$ ) provided the lowest mean

scores for the QTI behavioural scale of Helping/Friendly of 2.67 and 2.71 respectively. Variability of 0.48 was recorded between the maximum and minimum group mean scores, whilst a difference of only 0.15 is apparent between the remaining groups when the upper and lower group scores are excluded.

High alpha reliability values were recorded of 0.93, 0.97 and 0.92 respectively for the Country of Birth groupings of 'Asia/China', 'Americas' and 'Middle East' to the QTI behavioural scale of Helping/Friendly.

From this data analysis it is suggested that students born in 'Asia/China' and perceived their teachers the highest against the Helping/Friendly scale, whilst students born in the 'Americas' and 'Middle East' saw their teachers as the least Helping/Friendly within Australian based international pathway environment.

#### ***Country of Birth versus Strict***

A 95% confidence level ( $P < 0.05$ ) was recorded when student perceptions of the Strict behavioural scale were grouped by the variable of Country of Birth.

The means score of the QTI behavioural scale of Strict was recorded at 2.16 with students from born in the 'Americas' ( $n=5$ ), 'Northern Asia' ( $n=14$ ) and 'Africa' ( $n=228$ ) rating their teachers highest with respective grouped mean scores of 2.60, 2.42 and 2.40. 'Australia/NZ' ( $n=16$ ) and 'Europe' ( $n=16$ ) Country of Birth students rated their teachers lowest against the same scale with consecutive grouped means scores of 1.94 and 1.90.

A difference of 0.70 ( $2.60 - 1.90$ ) exists between the maximum and minimum grouped mean scores against the scale of Strict, and when these values are excluded, a range of 0.11 ( $2.16 - 2.06$ ) exists between the remaining grouped mean scores. Internal consistency data using the Cronbach's alpha reliability coefficient gave values of 0.91, 0.83, 0.76, 0.72 and 0.85 for the groupings of 'Americas', 'Northern Asia', 'Africa', 'Australia/NZ' and 'Europe' respectively.

Data analysis suggests that the scale of Strict was rated highest by students born in the 'Americas', 'Northern Asia' and 'Africa' and lowest by students born in

'Australia/NZ' and 'Europe' when student responses were grouped by Country of Birth within Australian based international pathway environment.

### ***Country of Birth versus Understanding***

Significance at  $p < 0.05$  was recorded against the behavioural scale of Understanding when data was grouped according to Country of Birth. This significance represents a 5% threshold that the associations in grouped mean scores are by chance alone.

The total mean score for the 'Understanding' scale was 3.21. Students belonging to the 'Country of Birth' grouping of 'Asia/China' ( $n=729$ ) rated their teachers highest against the scale of 'Understanding' with a mean score of 3.27. Students of 'Country of Birth' grouping 'Africa' ( $n=228$ ) provided a similar high mean score of 3.22. Students of 'Country of Birth' grouping 'Middle East' ( $n=14$ ) rated their teachers lowest against the same scale with a mean score of 2.80; representing a total difference between mean score of 0.47 between the maximum and minimum values. With the maximum and minimum groups excluded, the difference between the remaining grouped mean scores against the scale of 'Understanding' is 0.19 (3.00 – 3.19).

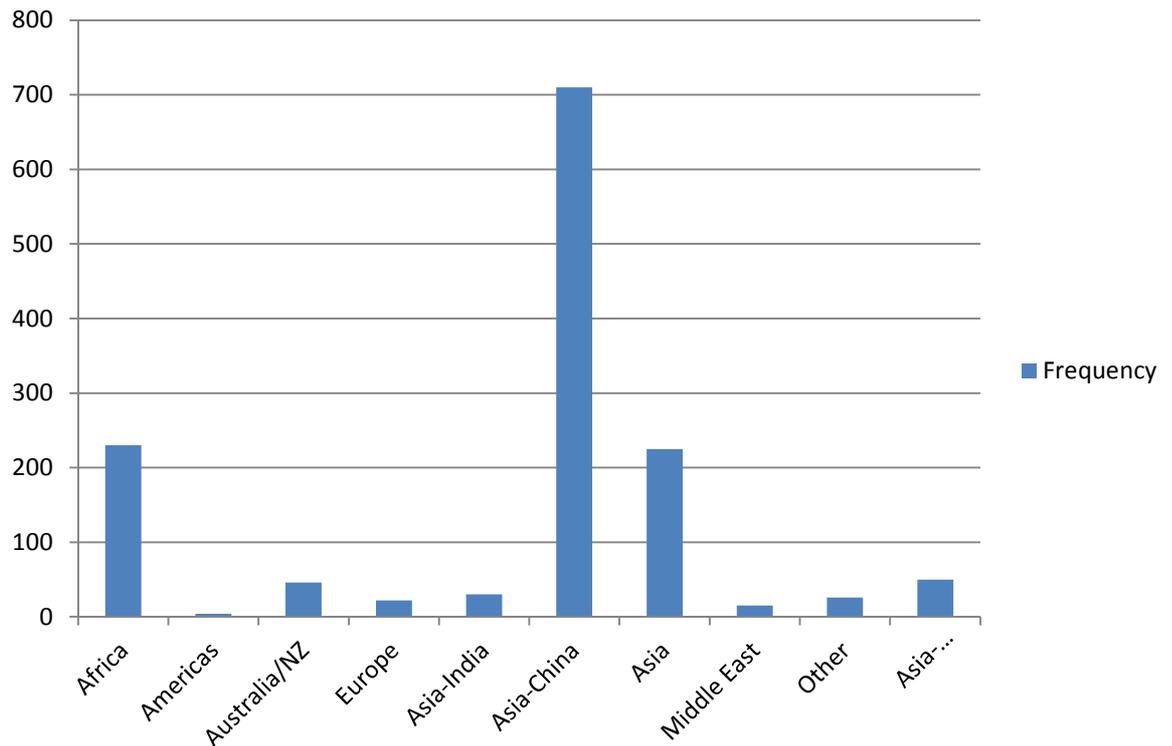
Cronbach's alpha reliability coefficient values on each of the two highest and one lowest grouped mean scores for the scale of 'Understanding' provided values of 0.94, 0.89 and 0.91 respectively for the three countries of birth of 'Asia/China', 'Africa' and 'Middle East'.

The data analysis suggests that students born in 'Asia/China' and 'Africa' perceived their teachers the highest against the Understanding scale, whilst students born in the 'Middle East' saw their teachers as the least Understanding within Australian based international pathway environment.

The next section of this chapter will now present data on student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environments when grouped by the variable Country of Citizenship.

### *Country of Citizenship*

When student responses were grouped by Country of Citizenship, 16.9% (n=230) identified as being of ‘African’ citizenship, 0.3% from the ‘Americas’ (n=4), 3.4% from ‘Australia/New Zealand’ (n=46), 1.6% from ‘Europe’ (n=22), 2.2% from ‘Asia/India’ (n=30), 52.2% from ‘Asia/China’ (n=710), 16.6% from ‘Asia’ (n=225), 1.1% from the ‘Middle East’ (n=15), 1.9 % from ‘Other’ (n=26) and 3.7% from ‘Asia/Indonesia’ (n=50). This information is further illustrated in Figure 5.5 below.



*Figure 5.5: Frequency distribution based upon Country of Citizenship*

A summary of statistical information for the eight scales of the QTI against the variable of Country of Citizenship is tabulated on the next page in Table 5.3. It can be observed in Table 5.3 that the Student Responsibility/Freedom and Uncertain behavioural scales recorded high levels of significance ( $p < 0.001$ ) when student responses were grouped by Country of Citizenship. Strict and Understanding behavioural scales provided a low significance value of  $p < 0.01$ . The behavioural scale of Admonishing was the only behavioural scale not to record significance when student responses within the Australian based international pathway were grouped by the variable Country of Citizenship.

Table 5.3: ANOVA analysis of the eight scales of the QTI based upon Country of Citizenship

Scale	Grouped Mean Scores – Country of Citizenship										F Value
	Africa	Americas	Australia/NZ	Europe	Asia/India	Asia/China	Asia	Middle East	Other	Asia-Indonesia	
Leadership	3.30	3.00	2.97	3.04	3.07	3.12	3.02	2.72	2.95	3.04	2.94**
Helping/Friendly	2.99	3.50	3.10	3.11	2.97	3.15	2.88	2.78	3.00	3.02	2.88**
Understanding	3.20	3.08	3.11	3.26	3.05	3.28	3.06	2.81	3.10	3.12	2.44***
Student Responsibility/Freedom	2.17	2.62	2.36	2.49	2.40	2.76	2.33	2.41	2.41	2.35	11.61*
Uncertain	0.53	0.54	0.90	1.08	0.86	1.20	0.85	1.30	0.79	0.71	8.85*
Dissatisfied	0.67	0.71	0.92	0.95	0.79	0.96	0.87	1.32	0.75	0.73	1.99****
Admonishing	0.73	0.71	0.73	0.64	0.85	0.85	0.74	1.00	0.55	0.71	0.70
Strict	2.40	1.92	2.09	2.04	2.14	2.12	2.13	2.04	1.80	2.13	2.51***
N	228	5	16	16	90	729	216	15	14	32	

\* $p < 0.001$  Total  $n = 1358$ \*\* $p < 0.005$ \*\*\* $p < 0.01$ \*\*\*\* $p < 0.05$ 

Figure 5.6 graphically represents the mean scores of each grouping against the eight behavioural scales of the QTI.

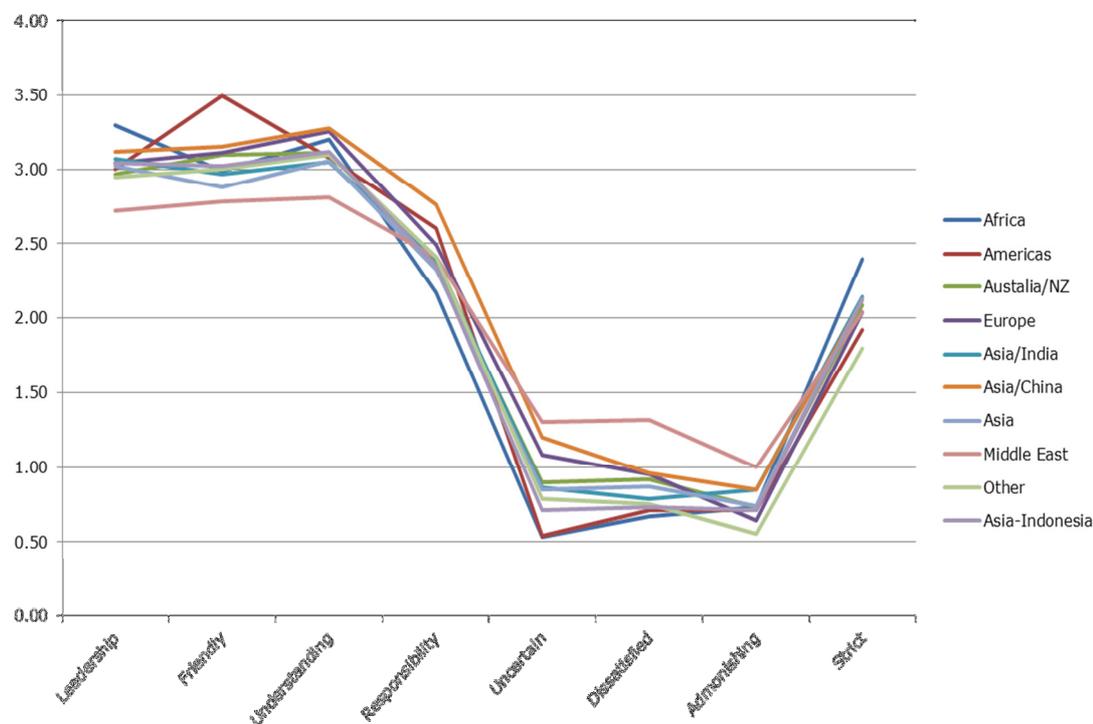


Figure 5.6: Grouped mean scores for each scale of the QTI based upon Country of Citizenship

From Figure 5.6 (previous page) it can be observed that when data is grouped by Country of Citizenship 'Asia/China' students generally viewed their teachers more positively by rating their teachers higher against the behavioural scales of Leadership, Helping/Friendly, Understanding, and Student Responsibility/Freedom, and lowest against the negative behavioural scales of Uncertain, Dissatisfied and Admonishing.

Students from the 'Middle East' tended to view their teachers more negatively by rating their teachers lowest against the scales of Leadership, Helping/Friendly and Understanding and highest against the scales of Uncertain, Dissatisfied and Admonishing.

'Africa' students are observed as perceiving their teachers highest against the scales of Leadership and Strict whilst students of citizenship 'Other' perceived their teachers as the least Admonishing and Strict.

QTI behavioural scales reporting significance based upon the grouping of Country of Citizenship groupings will be further examined. This information will be presented in order of highest to lowest significance reported for each QTI behavioural scale.

#### ***Country of Citizenship versus Understanding***

The scale of Understanding recorded a total mean score of 3.21 and when student responses were grouped by citizenship a high level of significance was recorded at  $p < 0.001$ .

Country of Citizenship groupings of 'Asia/China' (n=729), 'Europe' (n=16) and 'Africa' (n=228) rating their teachers highest with similar grouped mean scores of 3.28, 3.26 and 3.20, while students associating with Country of Citizenship 'Middle East' (n=15) rated their teachers lowest with a mean score of 2.81. A range of 0.47 exists between the maximum and minimum grouped mean scores, whilst with these values removed a range of only 0.07 (3.05 – 3.12) exists between the remaining grouped mean scores.

Using Cronbach's alpha reliability coefficient, internal consistencies of 0.94, 0.92,

0.90 and 0.90 were recorded for the consecutive citizenship categories of 'Asia/China', 'Europe', 'Africa' and 'Middle East'.

Quantitative data suggests that 'Asia/China', 'Europe' and 'Africa' citizenship students perceived their teachers as the most Understanding within the Australian based international pathway environment. Students of 'Middle East' citizenship viewed their teacher's understanding behaviour the lowest, while the remaining citizenship groups perceived their teachers Understanding behaviour in a similar way.

### ***Country of Citizenship versus Student Responsibility/Freedom***

A very high significance ( $p < 0.001$ ) was recorded for the behavioural scale of Student Responsibility/Freedom when grouped by Country of Citizenship.

Given a scale mean score of 2.54 for the Student Responsibility/Freedom, it was students of a citizenship 'Asia/China' ( $n=729$ ) and 'Americas' who rated their teachers similarly highest against this behavioural scale with a mean score of 2.76 and 2.60, and a lowest mean score was recorded for the citizenship grouping of 'Africa' ( $n=228$ ), with a value of 2.17; a difference of 0.59 between the maximum and minimum grouped mean scores. With these maximum and minimum values removed the difference between the remaining grouped mean scores is 0.08 (2.41 - 2.33).

Internal consistency values for the maximum and minimum groupings of 'Asia/China' 'Americas' and 'Africa' were recorded as 0.91, 0.80 and 0.83 respectively.

Data analysis suggests that 'Asia/China' and 'America's' citizenship students perceived their teachers as providing the most student responsibility and freedom with students of 'Middle East' citizenship perceiving their teachers lowest against the Student Responsibility/Freedom behavioural scale within the Australian based international pathway environment. The remaining citizenship groups perceived the Student Responsibility/Freedom behavioural scale in a similar way.

***Country of Citizenship versus Uncertain***

A scale mean score of 0.98 was recorded for the behavioural scale of Uncertain in which a high confidence level at 99.9% ( $p < 0.001$ ) was recorded when student responses to the Uncertain behavioural scale items were grouped by Country of Citizenship.

Students of 'Africa' ( $n=228$ ) and 'Americas' ( $n=5$ ) citizenship rated their teachers lowest against the behavioural scale of Uncertain with consecutive mean scores of 0.53 and 0.54, whilst 'Middle East' ( $n=15$ ) and 'Asia/China' ( $n=729$ ) citizenship students rated their teachers highest against the same scale with a means scores of 1.30 and 1.20 respectively; a difference of 0.77 between the maximum and minimum grouped mean scores. When these maximum and minimum grouped mean scores are excluded the range between grouped means scores is only 0.37 (1.08 – 0.71).

Values of 0.91, 0.99, 0.89 and 0.96 were successively recorded for the internal consistency of the citizenship groupings of 'Africa', 'Americas', 'Middle East' and 'Asia/China' based on the QTI behavioural scale of Uncertain.

This quantitative data suggests that and 'African' and 'America's' citizenship students perceived their teachers as exhibiting more Uncertain behaviour, whilst 'Middle East' and 'Asia/China' students perceived their teachers as less uncertain. The remaining language groups of students within the Australian based international pathway viewed their teacher's Uncertain behaviour alike.

***Country of Citizenship versus Leadership***

A significance value of 0.002 was recorded against the Leadership scale when student data was grouped by Country of Citizenship. This value was placed into the  $p < 0.005$  significance threshold, however it is noted that it almost reached the higher statistical significance level of  $p < 0.001$ .

The total mean score for Leadership was 3.12 with students of 'Africa' ( $n=228$ ) citizenship rating their teachers highest against the Leadership scale with a mean group score of 3.30. 'Middle East' ( $n=15$ ) citizenship students rated their teachers lowest against the Leadership scale with a mean score of 2.72. A difference of 0.58

was noted between these maximum and minimum grouped mean scores. When excluding these maximum and minimum group mean scores, the range of the remaining grouped scores for the Leadership scale was 0.17 (3.12 - 2.95).

Internal consistency values of 0.89 and 0.66 were recorded for 'Africa' and 'Middle East' citizenship using Cronbach's alpha reliability coefficient.

This quantitative data suggests that students of 'African' citizenship perceived their teachers highest against the Leadership scale within the Australian based international pathway environment. Students of 'Middle East' citizenship viewed their teacher's leadership behaviour the lowest while the remaining citizenship groups perceived their teachers Leadership behaviour in a similar way.

#### ***Country of Citizenship versus Helping/Friendly***

This behavioural scale also recorded a significance value of 0.002, was placed into the  $p < 0.005$  threshold, and missed narrowly the statistical significance of  $p < 0.001$ .

A Helping/Friendly scale mean score of 3.06 was recorded, with students associating with Country of Citizenship of 'Americas' (n=5) rating their teachers highest with a group mean score of 3.50, and students of citizenship 'Middle East' (n=15) rating their teachers lowest with a mean score of 2.78; a range of 0.72. The remaining grouped mean scores provide a more narrow range of 0.23 (3.11 - 2.88). Internal consistency analysis values of 0.75 and 0.92 were respectively recorded for the maximum and minimum groupings of 'Americas' and 'Middle East' citizenship.

The quantitative analysis suggests that students of 'America's' citizenship perceived their teachers as the most Helping/Friendly within the Australian based international pathway environment. Students of 'Middle East' citizenship viewed their teacher's helping and friendly behaviour the lowest, while the remaining citizenship groups perceived their teachers Helping/Friendly behaviour in a similar way.

#### ***Country of Citizenship versus Strict***

A 99% confidence level ( $p < 0.01$ ) was recorded against the behavioural scale of Strict when grouped by Country of Citizenship.

The total mean score for the Strict scale was 2.16, and when responses to this scale were separated into groups based upon Country of Citizenship a range of 0.6 was recorded between the highest grouped mean score of 2.40 for the citizenship of 'African' (n=228) and lowest grouped mean score of 1.80 for the citizenship of 'Other' (n=14).

Respective internal consistencies for each grouping of 'Africa' and 'Other' were 0.75 and 0.86 for the six items of the QTI behavioural scale of Strict, suggesting that student responses to the items of the QTI behavioural scale of Strict were similar when grouped by the respective Country of Citizenship groupings.

Quantitative data from this study suggests that students of 'African' citizenship perceived their teachers as the strictest, whilst students of 'Other' citizenship perceived their teachers as the least Strict. The remaining language groups of students within the Australian based international pathway viewed their teacher's Strict behaviour similarly.

#### ***Country of Citizenship versus Dissatisfied***

The Dissatisfied scale recorded a significance at  $p < 0.05$ . The total scale mean score for the Dissatisfied behavioural scale was 0.89. The highest mean score was 1.32 recorded against the citizenship category of 'Middle East' (n=15), whilst the lowest mean scores of 0.67 and 0.71 were recorded for the successive grouping of 'African' (n=228) and 'Americas' (n=5); the difference between these maximum and minimum scores being 0.65.

Using the Cronbach alpha reliability coefficient values of 0.96, 0.88 and 0.97 were recorded as measures of internal consistency for each of the citizenship groupings of 'Middle East', 'African' and 'Americas' for the items of the QTI behavioural scale of Dissatisfied.

Quantitative student data from this study suggests that students of 'African' and 'America's' citizenship perceived their teachers as the least Dissatisfied, whilst students of 'Middle East' citizenship perceived their teachers as the most

Dissatisfied. The remaining language groups of students within the Australian based international pathway viewed their teacher's dissatisfaction behaviour similarly.

The next section of this chapter will now present data based upon the variables of Sex and Age.

### 5.3 Qualitative data - Cultural Background variables

Three observations were consistent when student responses to the modified items of the QTI was grouped and analysed using two or more of the introductory questions of the IQTI relating to Cultural background.

The quantitative data analysis of student responses when grouped upon the introductory question on Cultural Background suggests that 'Arabic' Primary Language and 'Middle East' Country of Citizenship or Country of Birth perceived their teachers as less of a leader. Students of an 'African' Primary Language, Country of Citizenship and Country of Birth appeared to perceive their teachers as the strictest, while 'America's' Country of Birth and Country of Citizenship provided diametrically opposite results against the negative scales.

As a result of the observed outcomes from the analysis of quantitative student data, qualitative feedback was sought from students within the Australian based international pathway learning environment using the following three questions:

- *“Do you think that students from the Middle East see their teachers as less of a ‘leader’ than other students in the class?”*
- *“Do you think African students see their teacher as more “strict” than other students in the class?”*
- *“Do you think students from the Americas (USA, Canada etc) see their teachers in a different way to other students?”*

The literature review within this study suggested that language is the first barrier encountered by students (Selvadurai, 1992), whilst other literature confirmed that language is an influencing factor in the multicultural learning environment (Levy, Wubbels, Brekelmans, Morganfield, 1997; Rickards, Fisher, 1999; Rickards, 1998;

Young, 1998; Ballard, 1987; Ballard and Clanchy, 1997; Ryan and Hellmundt, 2003).

During the qualitative data collection exercise of the pilot and main study the researcher made a number of observations that provide value to this study in relation to cultural background. During interviews that required students to form groups, the researcher noted that students immediately joined up into groups in which they could converse in their preferred language, or in a language that they could easily understand. The researcher also observed that at times students changed between English and their Primary Language when discussing some of the more difficult language, or where similar dialects provided linguistic barriers. Students who did not belong to any particular language group, or had too few students of the same language group undertook their discussions in English.

The researcher observed that students openly engaged and participated when asked to reflect on the positive QTI behavioural scales of Leadership, Helping/Friendly, Understanding, Student Responsibility/Freedom and the dominance behaviour of Strict. Students were able to provide comments on both the teacher's behaviour and the classroom dynamics when a teacher demonstrated each of the above mentioned QTI behavioural scales. Overall students were able to provide feedback that demonstrated their understanding of each of the behavioural scales, and in general this feedback was common for the entire group. When asked to reflect on a single behaviour scale, students also provided feedback which supported the close relationship of adjacent scales, or at times, reinforced the opposition of contrasting scales. Some discussions led to students talking about particular teachers who displayed positive behaviours that they had encountered within the international pathway learning environment.

When the researcher tried to gain written or verbal comments or tried to engage students to discuss the negative behavioural scales however, a mixed response was observed. Students of Asian origin, tended to provide little feedback against the negative scales or items. Many Asian students appeared confused or unable to ascertain that a researcher would wish to gauge the effects of a teacher who demonstrates negative behaviour. It was some of the more extraverted students, who

had also been within the Australian based international pathway learning environment for an extended period of time, who actually expressed their concerns in providing feedback against these negative scales. Some students implied that they were uncomfortable talking about negative behaviours of teachers. Some students noted that teachers are always right and that it did not matter whether they were happy or sad, while others feared repercussions of speaking out against teachers.

Students from African and Middle Eastern backgrounds tended to be more willing to give feedback; however these students wanted to seek reassurance from the researcher that their feedback was anonymous and to remind the researcher that they feared the repercussions before making such statements.

Students from more Western influenced countries such as Singapore and Malaysia, and students from Western countries such as Australia appeared to be open and expressed some of their interactions with teachers who had demonstrated negative scale attributes.

The relationship between Primary Language, Country of Birth and Country of Citizenship is supported in literature from within this study which explains that a person can claim to be a part of a group/community based upon nationality, ethnic, language, religion and other origin (Vesna, 2010).

#### ***A Middle Eastern origin***

A sample of students was asked “*Do you think that students from the Middle East see their teachers as less of a ‘leader’ than other students in the class.*”

Student responses to this question were limited and may reflect the relatively low frequency of students from Middle East backgrounds observed in the quantitative section of this study (Section 4.3.1).

*Weiwei: Yes, sometimes.*

*Tran: Yes, I do believe so.*

*Julius: maybe, due to their culture perception.*

*Min: some of them do not respect teachers in class. e.g. chatting loudly in class*

*Irfan: maybe ...it depends*

Some students gave a brief insight into students' experiences of culture within the Australian based international learning environment in respect to 'Middle East' students. These comments provided limited support to the quantitative data findings from the main study that suggests that students associating with an 'Arabic' Primary Language, 'Middle East' Country of Citizenship or Country of Birth perceive their teachers as less of a leader (Section 4.3.1).

Through the researcher's own teaching experience it had been observed that students of Middle Eastern origin have, at times, been associated with disrupting the teaching and learning environment. Similar disruptive interactions were also noted by fellow female teachers and discussed with the researcher during his time as a teacher and academic leader. Similar disruptions were also observed within the classroom by the researcher (as a teacher) when groups of males of Middle Eastern origin were been placed in a single class; regardless of the sex of the teacher. Arabic student cohorts in Australia continues to be poorly researched in relation to empirical studies of attitudes, opinions, and perceptions (Rane, Nathie, Isakhan & Abdalla, 2011) however previous studies such Sawir, Marginson, Deumert, Nyland and Ramia (2007) identify loneliness as one of the symptoms of Middle Eastern students, and Gauntlett (2005) concluded that Arabic students goals and expectations for learning were based on a desire to maintain social ties typical of the collectivist society and avoid uncertainty.

When the researcher was working in the United Kingdom a similar discussion was had with work colleague/student within a UK based international pathway learning environment. This student/staff member from a Pakistani background described that it may not be because of language, or citizenship or birth that Middle Eastern students see their teachers as less of a leader, but it may be more of a reflection on perspective of leadership based upon religious belief. As a devout Muslim he expressed that the perception of people holding leadership status within his community may be different from that of the researchers. The student and the

researcher then proceeded to draw up a top five personal influences that provide leadership. The researcher indicated that leadership to him was expressed in professions such as doctors, policemen, teachers and politicians. The student's responses were 'Allah'/God, religious cleric, and his father (parent) and then he continued with similar responses as the researcher with professional people within the community. The student expressed how his religion was the most important thing to him, and that he sought and followed the guiding of his religion. His perception was that a teacher's leadership is not as influential on him as is his religion, and this may give reason reasons as to why students from a 'Middle Eastern' background may perceive their teachers as having less leadership characteristics than other students. According to Sa'ari and Borhan, (as cited in Guimba, Hashim, Hussein, Razikin & Esteban, 2011) a leader, from an Islamic perspective, is distinguished from their followers by knowledge and commitment to Islamic principles and possession of superior moral values.

Other students providing qualitative feedback did not observe there being a difference in student perception based upon the student being from the Middle East:

*Fatuma: No*

*Wasim: not really , who ever naughty students are, If teachers keep going up with passionate and teaching , no one whould bother that*

*Flora: No, I don't think they do.*

One student did not believe that differences would occur because of a teacher-student interaction:

*Peng: not at all a teacher is a teacher every ones equal*

Some students chose not to comment as they did not have Middle Eastern students in their class or provided a comment which indicated that they could not comment:

*Geet: sorry i don't know about them. i am very sorry. i don't*

*wan't to answer a question which i don't know.*

*Patrick: no ideas about this question*

*Violet: I don't know, never had a middle east classmate*

### ***An African origin***

The next qualitative question related to the quantitative finding that students of an Africa/n Primary Language, Country of Birth and Country of Citizenship appeared to rate their teachers higher against the Strict Scale.

Australian based international pathway education students were asked “*Do you think African students see their teacher as more “strict” than other students in the class?*”

Six student responses did not believe that African students perceived their teachers as more “Strict” with responses as follows:

*Fatuma: No*

*Wasim: not really the same as above*

*Seto: No.*

*Amann: no*

*Tran: No, I do not believe so.*

*Mehul: i don't think so*

Other students attempted to give possible explanations which suggest that there may be some congruence to the quantitative analysis:

*Patrick: Maybe, because African students are from a more free country I guess.*

*Peng: to some extend yes maybe, but i guess its in the students had to use the oppertunity.*

*Flora: Perhaps they do.*

*Julius: this depends on the nature of the teacher and attitude as well but i don't think so because nowadays things have changed.*

*Nadeem: Really depends on individuals and the schools in which they attend*

*Irfan: maybe ...it depends*

The remaining students provided responses in which they either did not know, or could not respond as they did not have any African students in their class:

*Geet: sorry i don't know about them. i am very sorry. i don't want to answer a question which i don't know.*

*Violet: I don't know, never had an African classmate*

*Kefah: dont know*

*Jun: blank*

*Min: no class with African students*

Whilst living and working in Africa the researcher undertook a number of discussions with employees of an Australian based international education provider, who were also past and current students of the same institution. The employees explained that many African students were unaccustomed to strict enforcement of policies and procedures in relation to attendance, performance and assessment.

Via the authors' direct experience within the pathway environment in Africa, it was observed that within some African based education institutions that it was habitual for students to be late to class, finish early, or not attend classes, without consequence. Students were granted great leniency when they missed or presented late to assessments which could be sat or submitted at a later date; typically without academic penalty or repercussion. This freedom was observed by the researcher as being permitted due to the difficulties of life encountered in Kenya, and for which the researcher had a lived experience.

### ***An America's origin***

Within the quantitative data (Figure 5.4 & 5.6) there was a notable difference in student perceptions from the 'Americas' in relation to the negative behavioural scales of teacher-student interactions when grouped by the variables of Country of Birth and Country of Citizenship. It is important to note that a low response rate was recorded for the America's grouping within both variables which may have influenced the statistical analysis.

Students within the Australian based international pathway learning environment were asked “*Do you think students from the Americas (USA, Canada etc) see their teachers in a different way to other students?*”

Examples of students providing affirmations were as follows:

*Fatuma: Yes*

*Tran: Yes, I do believe so.*

*Mehul: YES*

*Irfan: more relax.*

Examples of students providing rejections were as follows:

*Wasim: not really the same as above*

*Peng: not at all*

*Seto: No.*

*Flora: No, I don't think they do.*

Example student responses indicated that they could not provide any explanation:

*Patrick: no ideas*

*Violet: I don't know, never had an American student as my classmate*

*Kefah: dont know*

*Min: do not know classmates from USA and canada*

One student with direct experience within an Australian based international pathway institution in Canada provided the following comment:

*“Geet: yeah , they see. because i came from PUNJAB ( INDIA ) and now i am a student of simon fraser university in vancouver. Over there in india mostly students are afraid of their teacher. but here teachers are like friends, more closer to them, even closer than their parents.”.*

Another student response indicated that a difference may exist with an affirmative comment of:

*“yes, because learning behavior differs from those sides.”*

Most student responses indicated an affirmation or rejection of the statement without further comment or justification, while other students could not establish a connection between an America’s culture and the way they perceived their teachers.

The researcher was able to undertake an interview with a student who had transferred from Canada to Australia, and asked about teachers in Australian being uncertain, dissatisfied and admonishing. The student suggested that it may be a reflection of college life in Canada where teachers are involved in many aspects of students’ lives including sports and recreational activities.

The next section of this chapter will now present data on student perceptions of the Australian based international learning environment based upon the groupings of sex and age.

#### **5.4 Quantitative data - Sex and Age variables**

Quantitative student data was grouped using two introductory questions from the IQTI on student Sex and Age:

*Item 4: What is your sex?, and*

*Item 5: What is your age?*

Students indicated their Sex as either ‘Male’ or ‘Female’.

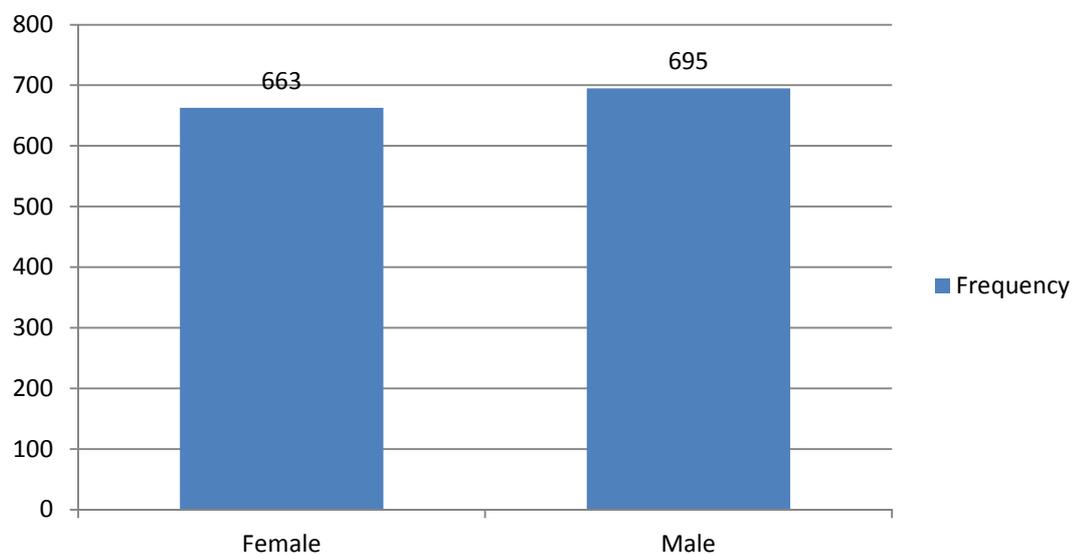
Age was recorded as a number which represented their age at the time of questionnaire completion. As part of the data analysis, Age was grouped into five categories of ‘15 – 17’, ‘18 – 20’, ‘21 – 23’, ‘24 – 26’, and ‘27+ older’. These categories were generated via observation of the data set, through experience of the

population, and with the intent to group students groups which were reflective of the sample population.

The following section will present information based on the analysis student data grouped upon the variables of Sex and Age respectively.

***Associations between student perceptions based upon Sex***

695 (51%) males and 663 females (49%) were represented in the study (Figure 5.7).



*Figure 5.7: Frequency distribution based upon Country of Birth*

Table 5.4, on the following page, provides information based upon the student perception of teacher behaviour within the Australian based international pathway learning environment based upon sex. Mean scores, F values and significance testing is presented. As the ratio of males to females is relatively proportionate, effect size analysis has also been reported.

Five out of eight scales had a significant difference with significant difference at  $p < .001$  for the behavioural scales of Uncertain, Dissatisfied and Admonishing and at  $p < 0.005$  for the behavioural scales of Understanding and Strict.

Observing the range of grouped mean scores against each of the eight behavioural scales it is noted that where the range is greater than 0.10 a significance value of

$p < 0.005$  is recorded, and where the difference is greater than 0.20 the significance value is increased to  $p < 0.001$ .

Table 5.4: ANOVA analysis of the eight scales of the QTI based upon Sex

Scale	Sex		Mean difference	F value	Eta	Eta <sup>2</sup>
	Male	Female				
Leadership	3.09	3.15	0.06	2.56	0.04	0.002
Helping/Friendly	3.03	3.10	0.07	2.07	0.04	0.002
Understanding	3.14	3.27	0.13	9.33**	0.08	0.007
Student Responsibility/Freedom	2.53	2.55	0.02	0.11	0.01	0.000
Uncertain	1.11	0.85	0.26	20.61*	0.12	0.015
Dissatisfied	1.02	0.75	0.27	22.43*	0.13	0.016
Admonishing	0.90	0.68	0.22	14.03*	0.10	0.010
Strict	2.24	2.08	0.16	10.00**	0.09	0.070
N	695	663				

\* $p < 0.001$

Total  $n = 1358$

\*\* $p < 0.005$

Figure 5.8 illustrates the means score responses of males and female students against the eight behavioural scales.

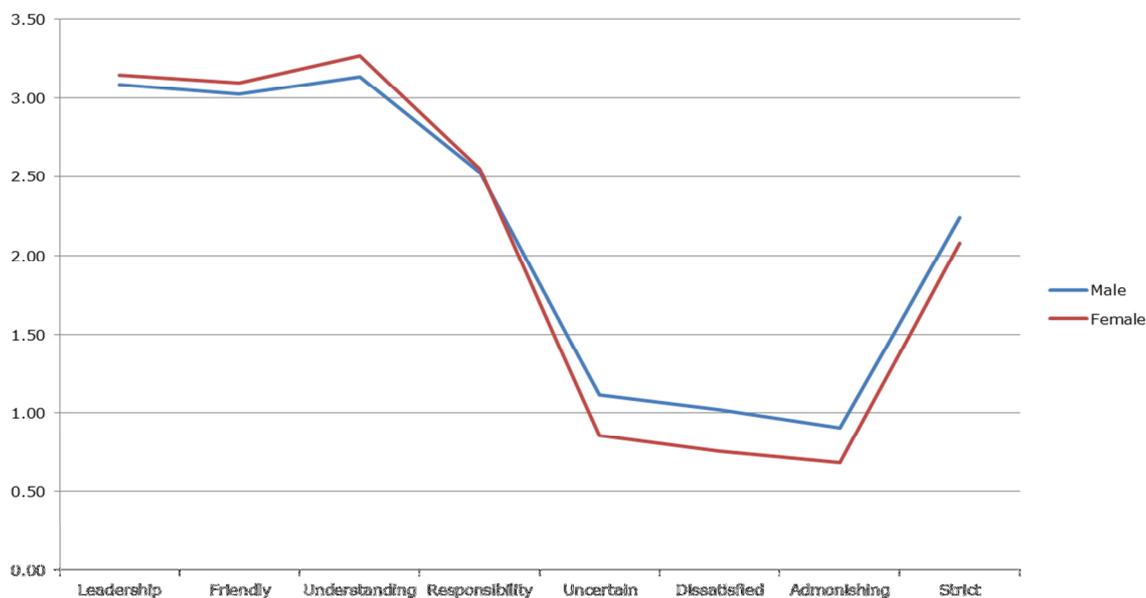


Figure 5.8: Grouped mean scores for each scale of the QTI based upon Sex

Based on the variable of Sex it is observed that 'female' students perceived their teachers more positively than their 'male' counterparts in which 'females' rated their teachers lower on the three negative scales of Uncertain, Dissatisfied and

Admonishing and higher against the positive scales of Leadership, Helping/Friendly and Understanding, with 'male' students rating their teachers higher against the Strict scale.

The following section will briefly report on the QTI behavioural scales reporting significance based upon the groupings of Sex.

***Sex versus Uncertain, Dissatisfied and Admonishing***

A very high significance ( $p < 0.001$ ) was recorded for the QTI behavioural scales of Uncertain, Dissatisfied and Admonishing when the student quantitative data was grouped by Sex, indicating a 1 in 1000 chance exists that an association has occurred by accident alone.

A high grouped mean score of 1.12 was recorded for 'males' and 0.84 for 'females' against the scale of Uncertain. Alpha reliability values of 0.96 ('male') and 0.94 ('female') indicate that 'males' and 'females' responded similarly to the items of the Uncertain QTI behavioural scale.

A grouped mean score of 1.02 was recorded for 'males' and 0.75 was recorded for 'females' against the behavioural scale of Dissatisfied. Alpha reliability values of 0.95 ('male') and 0.93 ('female') indicate that 'males' and 'females' responded similarly to the items of the Dissatisfied QTI behavioural scale.

A grouped mean score of 0.90 was recorded for 'males' and 0.68 for 'females' against the behavioural scale of Admonishing. Cronbach's alpha reliability coefficient calculations provided internal consistency values of 0.96 and 0.95 for the respective groups of 'male' and 'female' to the QTI behavioural scale of Admonishing.

***Sex versus Understanding and Strict***

A high significance ( $p < 0.005$ ) was recorded for the QTI behavioural scales of Understanding and Strict, indicating that a 1 in 200 probability exists that an association has occurred by chance.

'Females' ( $n=663$ ) rated their teachers highest against the QTI behavioural scale of

Understanding with a mean score of 3.27, and ‘males’ (n=698) lowest with a mean score of 3.15. High internal consistency was recorded within each set of grouped student data with Cronbach alpha reliability coefficient value of 0.92 for both ‘females’ and ‘males’ against the behavioural scale of Understanding.

‘Males’ were recorded as responding highest to the behavioural scale of Strict with a mean score of 2.24, whilst ‘females’ recorded the lowest mean score of 2.08. High internal consistency values of 0.84 and 0.85 were recorded for the groups of ‘male’ and ‘female’ to the items of the Strict QTI behavioural scale.

### *Effect size based upon the variable of sex*

In line with previous research (Rickards, 1998) the effect size (Cohen, 1988) was used to explore the effect of Sex. The effect size is calculated by dividing the difference of two groups by the standard deviation of the whole group, subtract the larger grouped mean score from the smaller grouped mean score and divide the score by the pooled standard deviation. Cohen (1998) defines three effect groups of small (0.10), medium (0.25) and large (0.40) with effect sizes generally no larger than 0.40.

*Table 5.5: Effect size for sex QTI Scale Grouped Mean Scores*

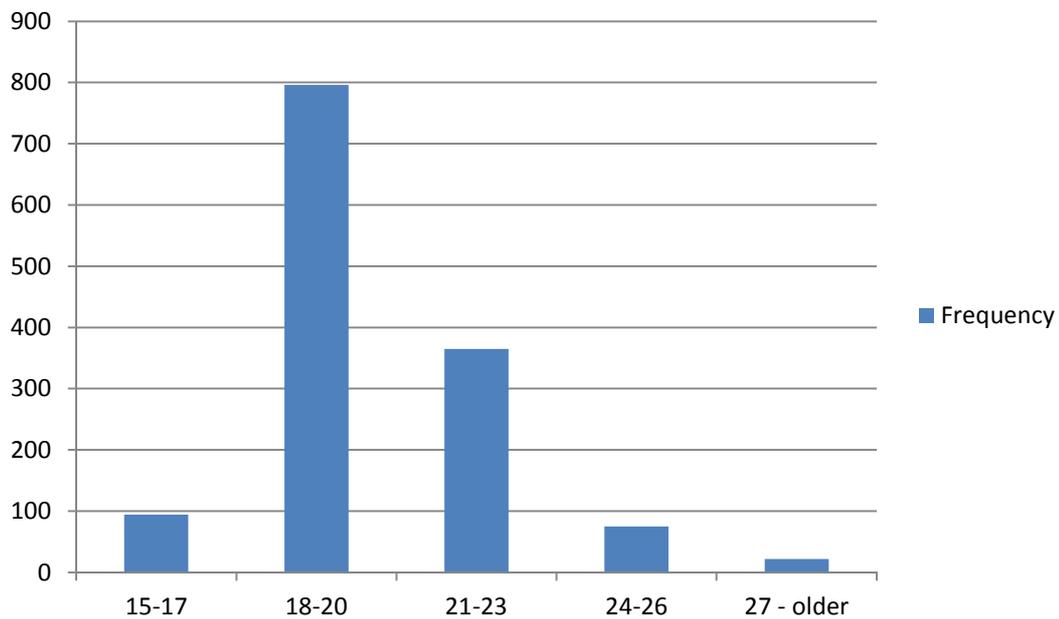
Scale	Sex		Pooled standard deviation	Effect size
	Male	Female		
Leadership	3.09	3.15	0.75	0.04
Helping/Friendly	3.03	3.10	0.81	0.06
Understanding	3.14	3.27	0.77	0.10
Student Responsibility/Freedom	2.53	2.55	0.92	0.02
Uncertain	1.11	0.85	1.10	0.29
Dissatisfied	1.02	0.75	1.06	0.29
Admonishing	0.90	0.68	1.08	0.24
Strict	2.24	2.08	0.93	0.15
N	695	663		

*Total n=1358*

Information from Table 5.5 above, indicates the QTI behavioural scales of Uncertain and Dissatisfied have an effect size that is ‘medium’ (greater than 0.25) with Understanding, Admonishing and Strict having ‘small’ effect sizes of between 0.10 and 0.25.

The following section will investigate associations in student perceptions based upon the groupings of Age.

***Associations in student perceptions based upon Age***



*Figure 5.9: Frequency distribution based upon Age*

Student responses to Age were divided into five age groups, with each group representing a two years age difference (Figure 5.9). The under 18 group (15 – 17) represented 7% (94) of sample, the 18-20 age group 59% (798), 21-23 age group 27% (365), the 24 – 26 age group 5% (75) and the 27 and older 2% (22).

*Table 5.6: ANOVA analysis of the eight scales of the QTI based upon Age*

Scale	Grouped Mean Scores - Age					F Value
	15-17	18–20	21–23	24–26	27- older	
Leadership	3.11	3.11	3.12	3.12	3.04	0.06
Friendly	3.02	3.04	3.13	3.00	2.92	1.06
Understanding	3.08	3.21	3.25	3.06	3.18	1.60
Responsibility	2.44	2.54	2.62	2.44	2.11	2.30
Uncertain	0.82	0.97	1.10	0.90	0.61	2.50****
Dissatisfied	0.67	0.85	1.02	0.94	0.66	2.90****
Admonishing	0.71	0.79	0.85	0.75	0.56	0.67
Strict	2.16	2.17	2.13	2.16	2.28	0.23
N	94	796	365	75	22	

\*\*\*\* $p < 0.05$  Total  $n = 1347$

Table 5.6 above, presents the statistical information from the ANOVA analysis of

grouped mean scores based upon the variable of Age for each of the eight QTI behavioural scales.

The scale of Uncertain and Dissatisfied provided the only significance ( $p < 0.05$ ) when student responses to the QTI behavioural scales were grouped by Age (Table 5.6 – previous page).

Figure 5.10 graphically represents the mean scores of each grouping against the relevant QTI behavioural scale.

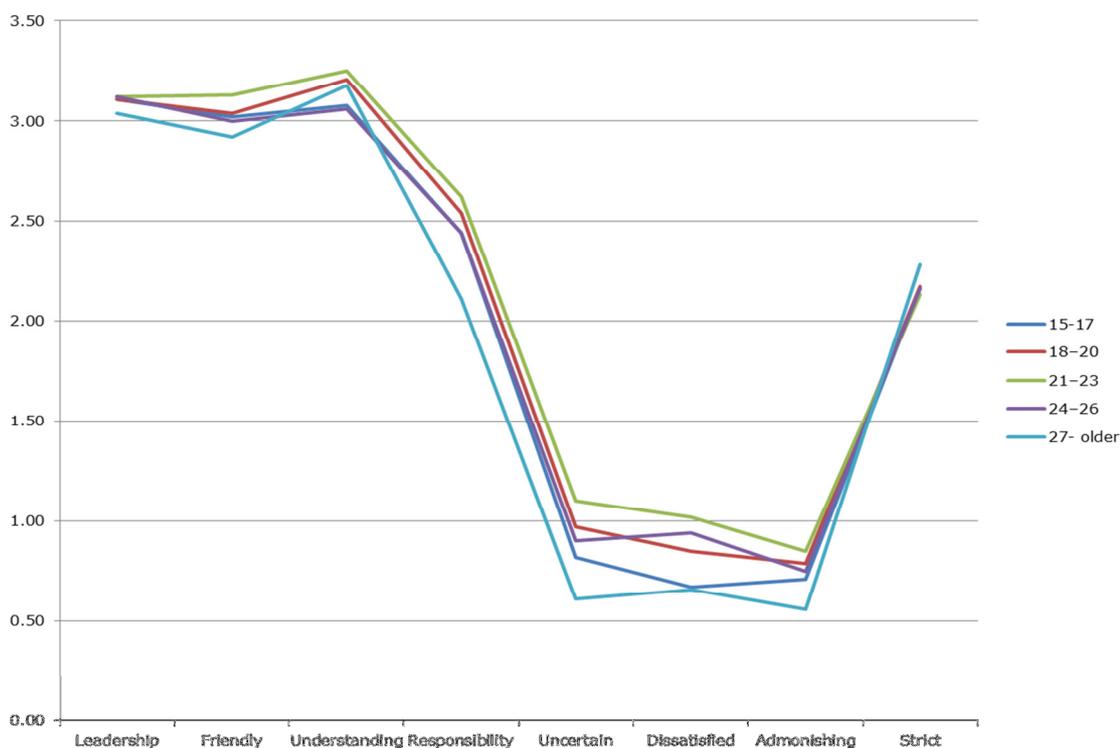


Figure 5.10: Grouped mean scores for each scale of the QTI based upon Age

In general it is observed in Figure 5.10 above that younger students (e.g. 21-23 years) rated their teachers higher on both the positive and negative scales, whilst older students ('27-older') appear to have rated their teachers minimum on both the positive scales and negative scales.

Based on observations of Figure 5.10 students in the '21 – 23' category responded highest to almost all behavioural scales except that of Strict compared to the remaining age groups, while students aged '27-older' rated their teachers lowest against almost all scores except that of Strict and Understanding.

The following section will now briefly report upon those QTI behavioural scales which reported significance when grouped by Age. Cronbach's alpha reliability coefficient values have been calculated for each maximum and minimum grouped mean score.

### *Age versus Uncertain and Dissatisfied*

A confidence level of 95% ( $p < 0.05$ ) was recorded for the QTI behavioural scales of Uncertain and Dissatisfied when student responses to the scales was grouped by the variable of Age.

A total scale mean score of 0.98 was recorded for the QTI behavioural scale of Uncertain. When grouped by the five categories of Age, the '21 – 23' ( $n=365$ ) group provided the highest rating of 1.10 and the '27 and older' ( $n=22$ ) group provided the lowest score of 0.61; a range of 0.49. Internal consistency values of 0.97 and 0.83 were recorded for the two age groupings of '21 – 23' and '27 and older' against the scale of Uncertain.

The quantitative data suggests that students within the age group '21 – 23' perceived their teachers as more Uncertain while students within the age group '27 and older' perceived their teachers less Uncertain within the Australian based international pathway learning environment.

The total scale mean score for the scale of Dissatisfied was 0.88 with student responses from the '21 – 23' ( $n=365$ ) age group responding highest against the scale with a group mean score of 1.02, and the lowest mean scores being associated with the '27+ older' ( $n=22$ ) group with a mean score of .66 and '15-17' ( $n=94$ ) age group with a mean score of 0.67; providing a small range of 0.36. The remaining two age grouped mean scores represent a range of only 0.09 (0.94 – 0.85). Measures of internal consistency using Cronbach's alpha reliability coefficient provides values of 0.95, 0.97 and 0.91 respectively for the three age groups of '21 – 23', '27+ older' and '15 – 17' age groups.

The quantitative data suggests that students within the age group '21 – 23' perceived their teachers as more Dissatisfied while students within the age group '27 and older'

perceived their teachers less Dissatisfied within the Australian based international pathway learning environment.

The following section will report on analysis of student quantitative data based upon Program of Study which comprises of four items; Region of Study, Level of Study, Subject and Period of Study.

### **5.5 Qualitative data - Sex and Age Variables**

Quantitative student data analysis also indicated that female students perceived the teacher-student interpersonal behaviour within the Australian based pathway learning environment more positively than their male counterparts.

Through experience as a teacher in Australian based international pathway learning environments, the researcher noticed, that on occasion, female students seemed to have a more positive view of their learning environment. This observation extended to female students appearing more inclined to get on with their work, to participate in a positive way in group work and completing homework on a more regular basis. As a teacher, the research noticed that he, subconsciously at times, would be more influential around male students, especially those that were disruptive or did not undertake a mature and responsible approach to their own education. As an Administrator, the researcher also noted that male students seemed more likely to be on a college intervention due to poor progress or attendance.

The researcher observed that female students appeared to be older than their male counterparts within the Australian based international pathway learning environment. This observation was accompanied by a number of informal conversations with staff and students which led to a general consensus that this may exist as male students were physically more capable for study aboard, while other conversations indicated that it may be culturally intrinsic for males to leave the family unit at a younger age to pursue their studies.

In opposition to the quantitative findings from this study the researcher asked the students:

*“Do you think female students see their teacher as more uncertain and dissatisfied than male students?”.*

One student perceived that the relationship existed:

*Julius: yes because females have a tendency to judge before thinking appropriately.*

Other student’s responses suggest that female students perceive their teachers more positively:

*Violet: no, from my point of view most of female student respect the teacher more than male students*

*Flora: No, I think female students see their teacher as sure of themselves.*

Other students rejected the statement. This disagreement could be interpreted as a rejection of the questions statement and therefore acceptance of the quantitative findings, or a complete rejection that any difference exists:

*Fatuma: No*

*Peng: not at all*

*Seto: No.*

*Amann: no*

*Tran: No, I do not believe so.*

*Jun: No*

*Min: no*

*Mehul: NO*

Other student responses demonstrate these differences may exist depending upon the teacher or individual student and some statements also reject that these differences are not based upon sex:

*Patrick: it depends on what types of their teachers are*

*Wasim: it depends on every single person, not gender.*

*Nadeem: Depends on individual students and teachers.*

*Irfan: maybe ,...it depends*

One further student comment rejected that students and/or teachers would notice such differences:

*Geet: no, i don't think so. but very few ( rare i say ) notice the characteristics of teacher so closely.*

### ***Age***

As discussed earlier within this chapter, enrolment in particular courses of study appear to be related to citizenship, and citizenship is also related to a student's Age. Each course has a unique study period and therefore a relationship between 'Program of Study' and Period of Study exists. As observed by the researcher, the student composition of each campus (Region of Study) is unique based upon the influence of the above variables.

Within this study, the grouping of quantitative data by Age provided fewer instances of significance, with only two negative QTI behavioural scales of Dissatisfied and Admonishing indicating a weak significance.

Typically new students to the Australian based international learning environment were within the age bracket of '18 – 20'. This age bracket would equate to a student of typical school leaving age. A lesser group of students enter at '15 – 17' and would represent those who are early school leaver, or their particular countries educational system enabled them to graduate early, with a majority of these students being aged 17. Most students spend 1 - 3 years within the Australian based international pathway learning environment and as represented in Table 4.10, the frequency of students in the older age groups '24 - 26' and '27 – older' reduces dramatically.

Age appeared as a unique variable within this cluster of variables as being correlated with Country of Citizenship and not correlated with Primary Language or Country of

Birth, however to the researcher this is not an unexpected outcome. As observed by the researcher in chapter one (Section 1.2.3) a student's citizenship is usually an indicator of the country in which the student completed their primary and high school studies. As each country has a unique age in which students reach school leaving age, it is expected that students from a particular country would also enter the Australian based pathway learning environment at a similar age. Other factors such as compulsory military service and scholarship entitlements in certain countries was also observed by the researcher and may contribute to the correlation between the variables of Age and Country of Citizenship.

Working within this environment the researcher made a number of observations that may provide some clarity within the Australian based international pathway learning environment.

As a teacher, the majority of students ('18 – 20', '21 – 23' and '24-26') were provided with a similar level and amount of teacher-student interaction.

Typically younger students '15 - 17' were indicated on class roles as 'minors' and as a teacher an increased duty of care was taken to ensure that these students were clear on expectations. As a college these students, who were 'minors' within the Australian legal definition, were monitored on a regular basis for attendance and academic performance.

The researcher noted that typically the older the student, the longer the student had been within the Australian based international pathway learning environment. This appeared to the researcher to be due to a number of personal, academic and social issues, of which poor academic progress appeared to be the most frequent reason for a prolonged study period. Through lived experience as a teacher in this environment, in general these older students (being more mature) tended to ask more questions and were focussed on what they needed to do to pass the unit. By this very interaction these students would engage with me on a more regular basis and wanted me as the teacher to understand their situation. In many cases, as a teacher, I would give the student clear instructions on what was required to pass the unit, direct the student on how to achieve the required outcome and allow them to undertake this learning

themselves.

## 5.6 Quantitative data - Program of Study Variables

Quantitative student data was grouped by the remaining four introductory questions from the IQTI relating to Program of Study:

*Item 6: In which region are you currently studying?,*

*Item 7: Which program are you currently studying?,*

*Item 8: Which type of subject was your last subject?, and*

*Item 9: In which semester did you start study at your pathway provider (college)?*

*Item 6* relates to the variable of Region of Study which was grouped using two categories of ‘Australia’ and ‘Other’.

*Item 7* relates to Level of Study which was grouped into the five categories of ‘Certificate IV’, ‘Diploma’, ‘Advanced Diploma’, ‘Bachelors’ and ‘Other’.

*Item 8* provided seven groupings of Subject based upon the areas of study of ‘Business’, ‘Computing’, ‘Science’, ‘Mathematics’, ‘Computing’, ‘Design’ and ‘Other’.

*Item 9* allowed the researcher to define the Period of Study which was grouped into four categories of ‘less than 1 year’, ‘1 - 2 years’, ‘2 – 3 years’ and ‘more than 3 years’.

The following section will now present quantitative student data based upon Program of Study using the variables of Region of Study, Level of Study, Subject and Period of Study.

### ***Associations between student perceptions based upon Region of Study***

Of a total of 1358 valid responses in this study, 81.2% (1103) completed the survey based upon studies within Australian based international pathway learning environments in ‘Australia’ and 18.8% (255) completed the survey based on studies outside of Australia: ‘Other’ (Figure 5.11 – next page).

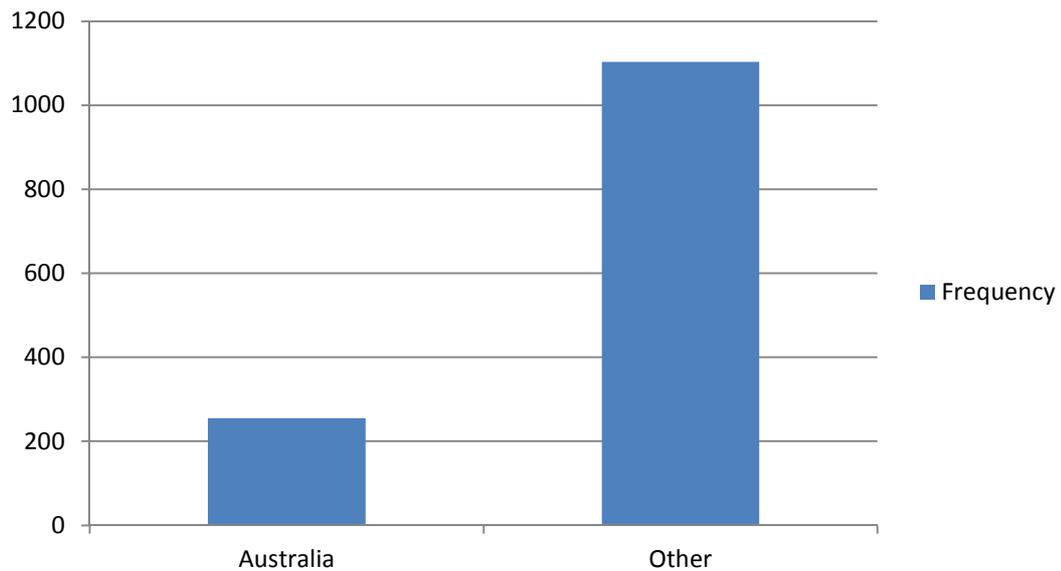


Figure 5.11: Frequency distribution based upon Region of Study

Table 5.7 (below) provides summary statistical information for the eight scales of the QTI against the variable of Region of Study, including mean F values and significance testing outcomes.

Table 5.7: ANOVA analysis of the eight scales of the QTI based upon Region of Study

	Grouped mean scores - Region of Study			F values
	Other	Australia	Difference	
Leadership	3.29	3.08	0.21	15.74*
Helping/Friendly	2.99	3.08	0.09	2.62
Understanding	3.21	3.21	0.00	0.00
Student Responsibility/Freedom	2.22	2.61	0.39	32.67*
Uncertain	0.63	1.06	0.43	39.40*
Dissatisfied	0.76	0.91	0.15	4.22****
Admonishing	0.79	0.80	0.19	0.03
Strict	2.41	2.10	0.31	23.13*
N	255	1103		

\* $p < 0.001$

Total  $n = 1358$

\*\*\*\* $p < 0.05$

Five of the eight behavioural scales recorded significance when the student data was grouped by Region of Study. Significance was reported at  $p < 0.001$  (Table 5.7) for the QTI behavioural scales of Leadership, Student Responsibility/Freedom, Uncertain, and Strict, and at  $p < 0.05$  for the behavioural scale of Dissatisfied when student responses were grouped by the variable of Region of Study.

Figure 5.12 illustrates the grouped mean scores of each of the eight QTI behavioural scales based upon Region of Study.

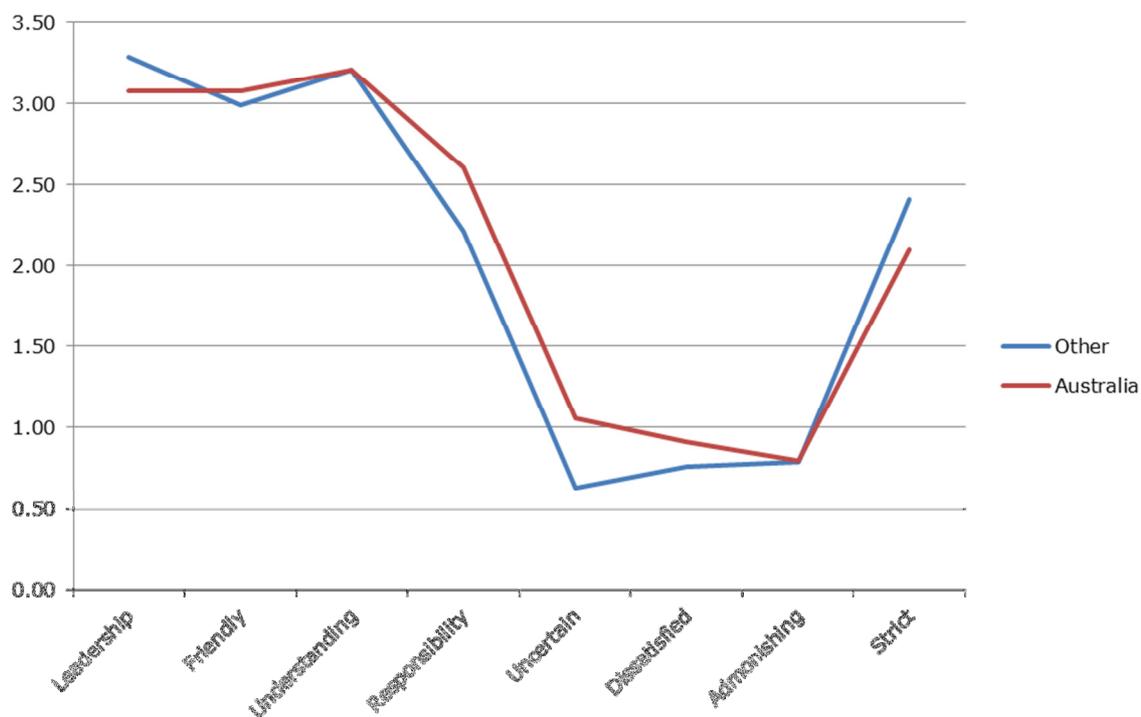


Figure 5.12: Grouped mean scores for each scale of the QTI based on Region of Study

It can be observed in Figure 5.12 above, that students studying in 'Australia' rated their teachers highest against the behavioural scales of Helping/Friendly, Student Responsibility/Freedom, Uncertain and Dissatisfied compared to the 'Other' Region of Study. Students studying outside Australia ('Other') rated their teachers highest against the behavioural scales of Leadership and Strict.

Of interest to note is the relationship between the opposing scales of Leadership and Uncertain, Strict and Student Responsibility/Freedom. 'Australia' region students appear to rate their teachers as less of a leader and less strict, but more uncertain and providing more responsibility and freedom. Student studying outside of Australia ('Other') appeared to rate their teachers as better leaders and more strict, and less uncertain and less likely to provide student responsibility and freedom.

QTI behavioural scales reporting significance based upon the Region of Study groupings will be further described. This information will be presented in order of

highest to lowest significance reported for each QTI behavioural scale.

### ***Region of Study versus Leadership***

The Leadership behavioural scale reported a high statistical significance ( $p < 0.001$ ) when student responses were grouped based upon Region of Study.

Leadership scale has a total scale mean score of 3.12. A difference of 0.21 was recorded between the two groupings of region against the Leadership scale of with students studying outside Australia ('Other' region) rating their teachers highest with a mean score of 3.29, and students within 'Australia' rating their teachers lowest with a mean score of 3.08. Internal consistency analysis of student responses to the items of the Leadership scale when grouped by Region of Study provides high alpha reliability values of 0.88 and 0.92 based upon the two regions of 'Other' and 'Australia'.

### ***Region of Study versus Student Responsibility/Freedom***

At a confidence level of 99.9% ( $p < 0.001$ ) associations are suggested to exist between student perceptions of teacher behaviour relating to the scale of Student Responsibility/Freedom and Region of Study within the Australian based international pathway environment.

Students from Region of Study 'Australia' rated their teachers highest against the behavioural scale of Student Responsibility/Freedom with a mean score of 2.61, whilst students from the Region of Study 'Other' rated their teachers lowest with a mean score of 2.22. Cronbach's alpha reliability coefficient analysis provides values of 0.90 ('Australia') and 0.82 ('Other') indicating a high internal consistency between responses of students to the items of the Student Responsibility/Freedom behavioural scale.

### ***Region of Study versus Uncertain***

With a significance level of  $p < 0.001$  the behavioural scale of Uncertain was rated highest by region 'Australia' with a mean score of 1.06 and an internal consistency value of 0.96, and was rated lowest by the region 'Other' with a mean score of 0.63 with an internal consistency value of 0.93.

***Region of Study versus Strict***

Strict provides the fourth and final QTI behavioural scale to indicate a high significance level at  $p < 0.001$  when student responses are grouped by 'Region of Study'.

Students studying in region 'Other' rated their teachers highest against the scale of Strict with a mean score of 2.41. This maximum group also recorded an alpha reliability value of 0.76 indicating a high level of internal consistency in student responses from the 'Other' Region of Study group to the items of the behavioural scale of Strict. Student studying within 'Australia' rated their teachers lowest against the same behavioural scale with a mean score of 2.10. A high internal consistency value of 0.86 was reported when Cronbach's alpha reliability analysis was completed on the 'Other' data subset.

***Region of Study versus Dissatisfied***

At a 95% confidence ( $p < 0.05$ ) percentile, the Dissatisfied behavioural scale was rated highest by those students studying in 'Australia' with a mean score of 0.91, and lowest by those students studying in 'Other' regions with a mean score of 0.77. Internal consistency values for 'Australia' and 'Other' were 0.95 and 0.91.

The next section of this chapter will now present data towards the associations between student's perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment based upon 'Level of Study'.

***Associations between student perceptions based upon Level of Study***

A total of 1356 valid responses were received in which 23.6% ( $n=320$ ) of students were completing a 'Certificate IV' program, 53.5% ( $n=725$ ) a 'Diploma' level program, 13.9% ( $n=189$ ) an 'Advanced Diploma' program, 4.2% ( $n=57$ ) a 'Bachelor's' program and 4.8% ( $n=65$ ) a Level of Study 'Other' than those listed previously (Figure 5.13 – next page).

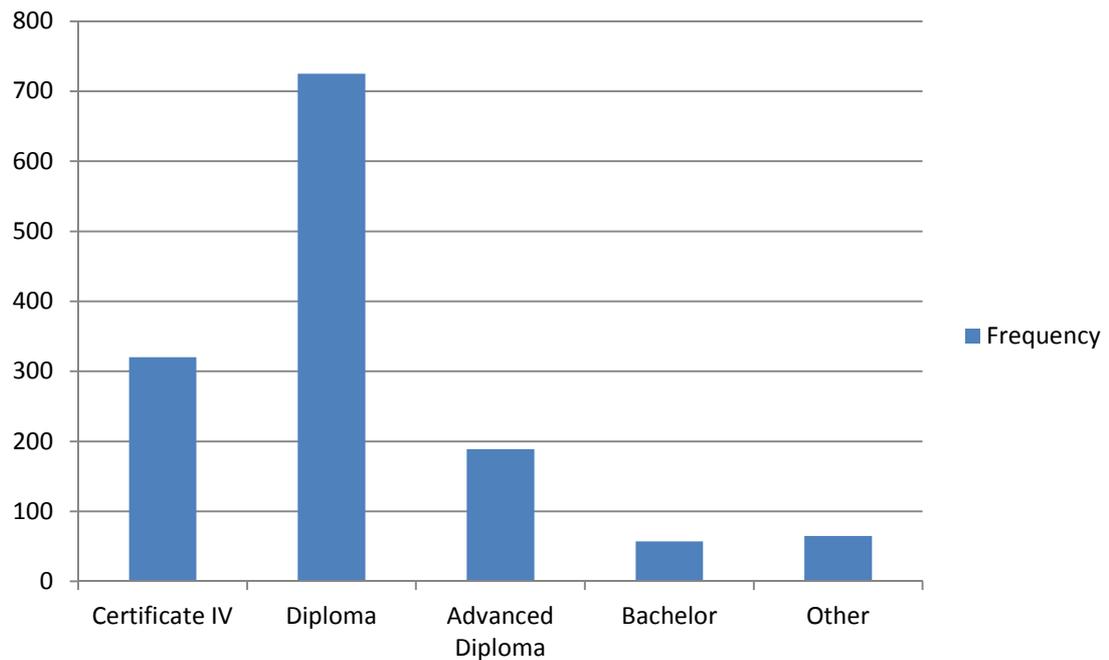


Figure 5.13: Frequency distribution based upon Program of Study

Table 5.8 below, provides the summary of ANOVA analysis in which relevant mean scores, F values and significance testing outcomes for each of the eight behavioural scales of the QTI based upon the Level of Study are presented.

Table 5.8: ANOVA analysis of the eight scales of the QTI based upon Level of Study

	Grouped Mean Scores - Level of Study					F value
	Certificate IV	Diploma	Advanced Diploma	Bachelor	Other	
Leadership	3.04	3.13	3.20	3.18	3.02	2.01
Helping/Friendly	2.99	3.09	3.14	3.10	2.83	2.78****
Understanding	3.08	3.25	3.24	3.32	3.05	3.88**
Student Responsibility/Freedom	2.46	2.47	2.54	2.43	2.19	4.19**
Uncertain	0.89	1.07	0.90	0.72	0.93	2.92****
Dissatisfied	0.83	0.83	0.79	0.84	1.06	1.30
Admonishing	0.81	0.81	0.78	0.68	0.79	0.180
Strict	2.13	2.17	2.17	2.17	2.22	0.190
N	320	725	189	57	65	

\*\* $p < 0.005$  Total  $n = 1356$

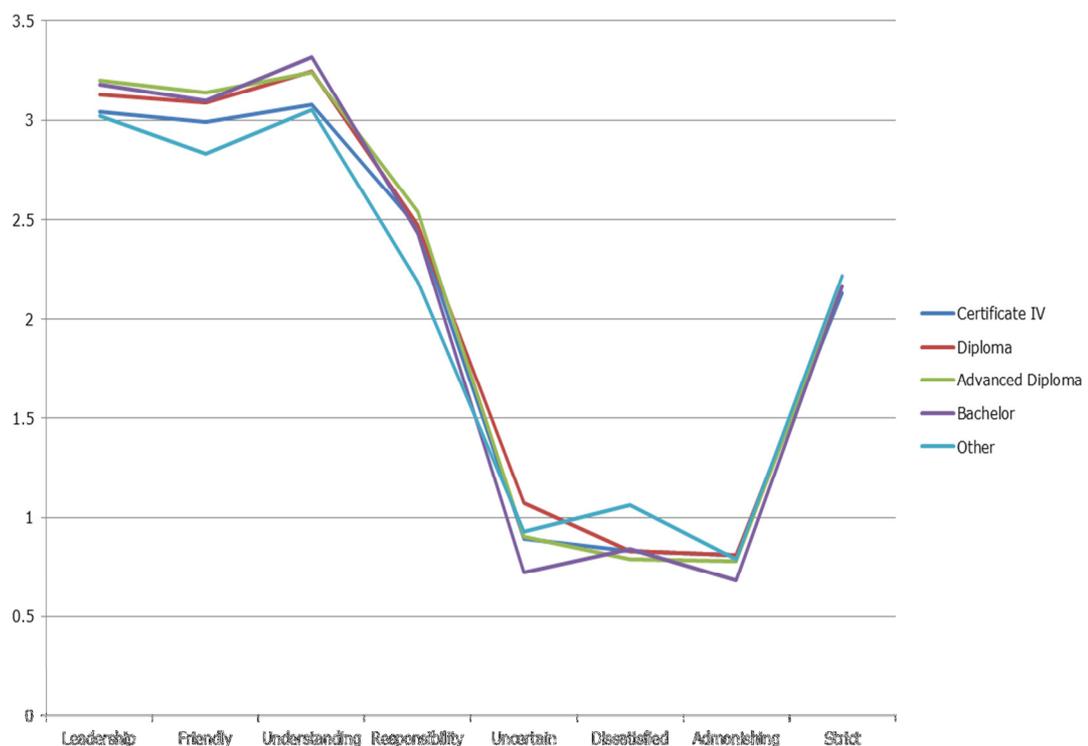
\*\*\*\* $p < 0.05$

Four of the eight behavioural scales of the QTI recorded significance when grouped by Level of Study. Significance was observed at  $p < 0.005$  for the QTI behavioural scales of Understanding and Student Responsibility and Freedom, and at  $p < 0.05$  for

the behavioural scales of Helping/Friendly and Uncertain when student data was grouped by Level of Study.

It is interesting to note that these four behavioural scales which have reported significance all belong to the ‘Submission’ and ‘Cooperation’ dimensions of the two-dimensional coordinate system of the Leary model (Wubbels, Créton, Levy and Hooymayers, 1993, p. 15).

Figure 5.14 represents the information presented in Table 5.8 (previous page) in a graphical form for a clear observation between associations. Based on the grouping of Level of Study it is observed that ‘Advanced Diploma’ and ‘Bachelor’ courses provided some of the highest grouped mean scores for the positive QTI behavioural scales of Leadership, Helping/Friendly and Understanding, and also the lowest grouped mean scores for the negative behavioural scales of Uncertain, Dissatisfied and Admonishing.



*Figure 5.14: Grouped mean student scores for each scale of the QTI based upon Program of Study*

This section will now examine those QTI behavioural scales reporting significance based upon the Region of Study groupings.

#### ***Level of Study versus Understanding***

The five groupings of Level of Study produced significance at  $p < 0.005$  for the behavioural scale of Understanding.

Students enrolled within a 'Bachelor' (n=57) Level of Study rated their teachers highest with a mean score of 3.32. Students associated with an 'Other' (n=65) Level of Study rated their teachers lowest against the same scale with a mean score of 3.05. An internal consistency value of 0.90 was recorded for both the Levels of Study 'Bachelor' and 'Other'.

#### ***Level of Study versus Student Responsibility/Freedom***

A 99.5% confidence level ( $p < 0.005$ ) was reported for QTI behavioural scale of Student Responsibility/Freedom when grouped into the five categories of Level of Study. This significance level suggests a 1 in 200 probability that an association between the five groupings of 'Level of Study' and the QTI behavioural scale of Student Responsibility/Freedom has occurred by chance.

A total scale mean score of 2.54 was recorded for the QTI behavioural scale of Student Responsibility/Freedom. Students studying an 'Advanced Diploma' (n=189) perceived their teachers higher against the scale of Student Responsibility/Freedom with a group mean score of 2.54. Students responding lowest to their teachers against the behavioural scale of Student Responsibility/Freedom were those students studying levels listed as 'Other' (n=65) with a grouped mean score of 2.19.

Cronbach's alpha reliability coefficient analysis provides internal consistency values of 0.88 ('Advanced Diploma') and 0.82 ('Other') which suggests that students responded similarly to the items of the Student Responsibility/Freedom behavioural scale.

### ***Level of Study versus Helping/Friendly and Uncertain***

The QTI behavioural scale of Helping/Friendly and Uncertain recorded a weak significance at  $p < 0.05$  when student responses were grouped by Level of Study.

3.06 was the total mean score for the QTI behavioural scale of Helping/Friendly. With a grouped mean score of 3.14, 'Advanced Diploma' (n=57) program students perceived their teachers highest against the scale of Friendly/Helping, whereas students studying an 'Other' (n=65) level program rated their teachers lowest on the same behavioural scale with a mean score of 2.83. Internal consistency calculated using Cronbach's alpha reliability coefficient generated values of 0.93 and 0.89 for the consecutive programs of 'Bachelor' and 'Other'.

Students studying a 'Diploma' (n=725) level program rated their teachers highest against the Uncertain scale with a grouped mean score of 1.07. The lowest rating by students to the Uncertain scale were those studying a 'Bachelors' (n=57) level program with a means score of 0.72. Cronbach's alpha reliability coefficient analysis gave a value of 0.76 for the 'Diploma' and 0.61 for the 'Bachelor' program.

The next section of this chapter will present data towards associations between students perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment based upon seven categories of Subject.

### ***Associations in student perceptions based upon Subject***

A majority (60.2%) of responses from students within the Australian based international pathway were studying 'Business' Subjects (n=818). The remaining group (39.7%) of students were those studying 'Computing' (n=140) with 10.3%, 'Science' (n=64) with 4.7%, 'Mathematics' (n=38) with 2.8%, 'Communications' (n=105) with 7.7%, 'Other' (n=182) with 13.4% and 'Design' (n=11) comprising of only 0.8% (Figure 5.15 – next page).

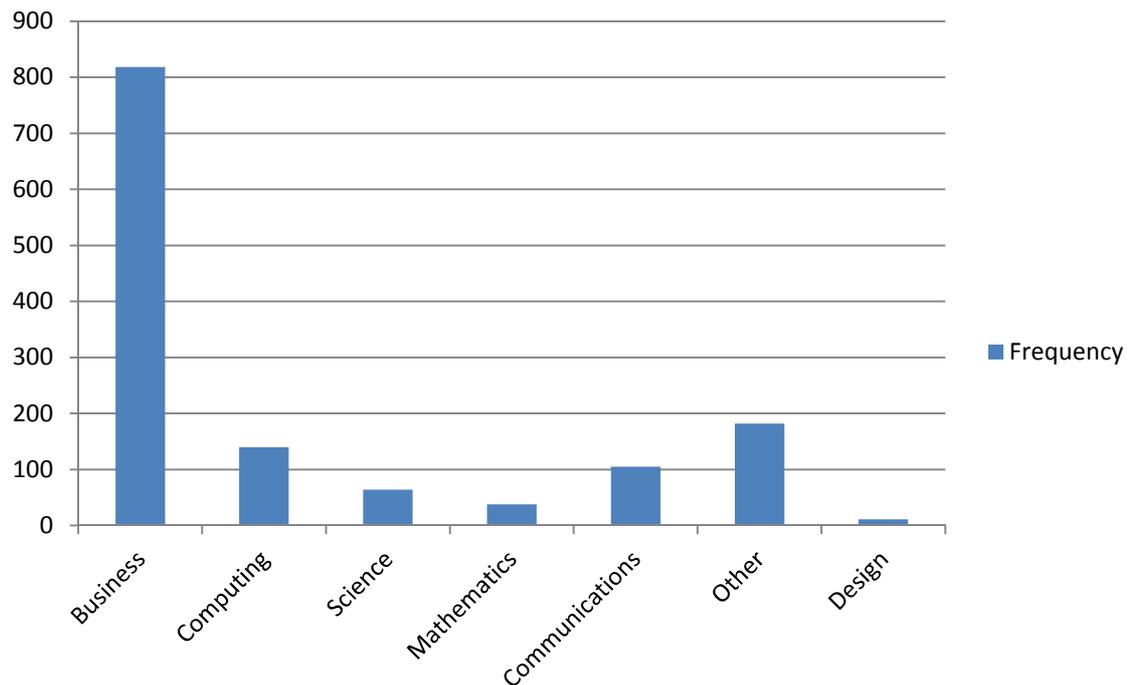


Figure 5.15: Frequency composition of study group based upon the variable of Subject

Table 5.9 below provides mean scores, F values and significance testing outcomes for the eight behavioural scales of the QTI based upon the groupings of Subject.

Table 5.9: ANOVA analysis of the eight scales of the QTI based upon Subject

Scale	Grouped Mean Scores - Subject							F value
	Business	Computing	Science	Mathematics	Communications	Other	Design	
Leadership	3.12	3.15	3.11	2.80	3.24	3.12	2.45	3.06***
Helping/Friendly	3.08	3.00	3.24	2.82	3.14	3.05	2.26	3.24**
Understanding	3.23	3.15	3.29	2.98	3.22	3.21	2.40	3.00***
Student Responsibility/ Freedom	2.60	2.31	2.56	2.33	2.50	2.53	1.94	3.36**
Uncertain	1.05	0.74	0.91	1.10	0.86	0.96	0.95	1.94
Dissatisfied	0.89	0.82	0.73	1.11	0.76	0.93	1.45	1.43
Admonishing	0.80	0.86	0.54	0.93	0.73	0.76	1.34	1.34
Strict	2.17	2.25	1.91	2.06	2.27	2.11	1.89	1.57
N	818	140	64	38	105	11	182	

\*\* $p < 0.005$

\*\*\* $p < 0.01$

Total  $n = 1358$

Significance was recorded in four of the eight behavioural scales of the QTI when grouped by Subject. The behavioural scales of Friendly/Helping and Student Responsibility and Freedom were recorded at  $p < 0.005$  significance level. The Leadership and Understanding scales recorded a lower significance of  $p < 0.01$  when grouped by Subject. All of the QTI behavioural scales indicating significance when grouped by Subject belong to the group of positive behavioural scales within the ‘Cooperation’ dimension of the Leary model (Wubbels, Créton, Levy and Hooymayers, 1993, p. 15).

Figure 5.16 below provides a line graph of the mean scores for each Subject group to each of the QTI behavioural scales identified within Table 5.0. Based on the variable of Subject students within the Australian based international pathway learning environment from ‘Design’ classes were observed as rating their teachers lowest against the positive scales of Leadership, Helping/Friendly and Understanding, and subsequently higher against the negative scales of Dissatisfied and Admonishing.

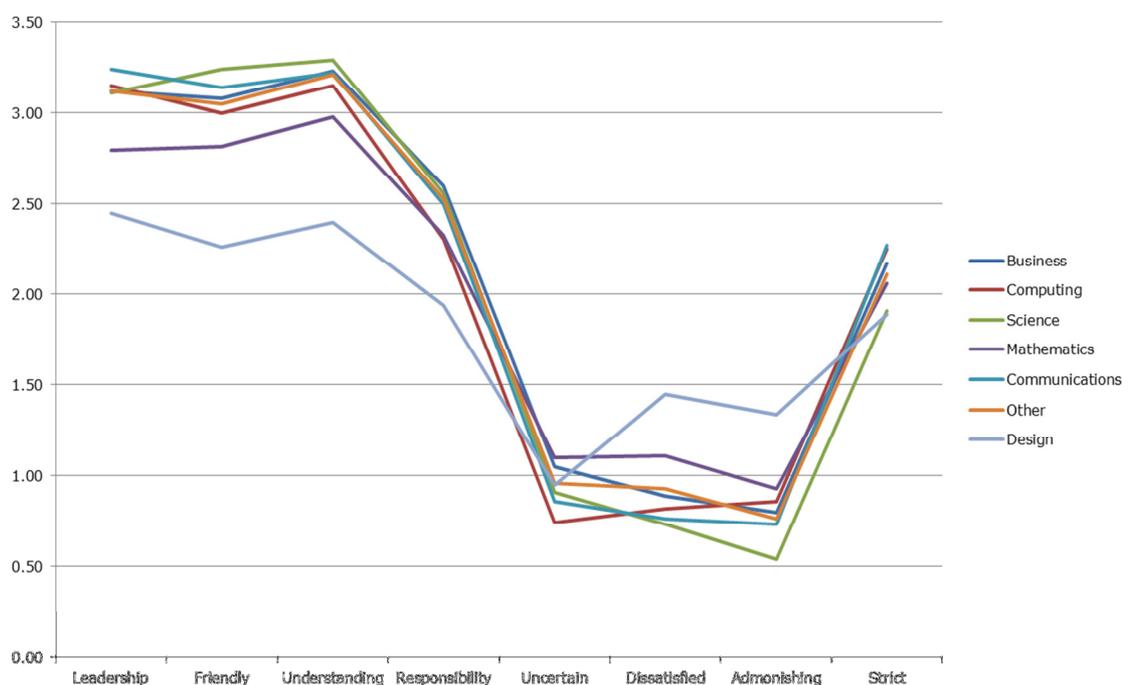


Figure 5.16: Grouped mean scores for each scale of the QTI based on Subject

The Subject groupings of ‘Science’ and ‘Communications’ rated their teachers highest against the scales of Leadership, Helping/Friendly and Understanding, whilst student within ‘Communications’, ‘Science’ and ‘Computing’ classes rated their

teachers lowest against the scales of Uncertain, Dissatisfied and Admonishing.

The next section will further report upon those QTI behavioural scales reporting significance based upon the groupings of Subject.

### ***Subject versus Friendly/Helping***

The scale of Helping/Friendly recorded a total mean score of 3.06 and when student responses were grouped by Subject a 99.5% confidence level ( $p < 0.005$ ) was recorded.

Students within a 'Science' ( $n=64$ ) subject are observed as rating their teachers highest against the behavioural scale of 'Friendly/Helping' with a group means score of 3.24. Students within 'Design' ( $n=11$ ) classes rated their teachers lowest against the same scale with a mean score of 2.26; a difference of 0.98 between the maximum and minimum mean grouped scores. When removing each of the maximum and minimum group mean scores, the range between the remaining group mean scores is only 0.32 (3.14 – 2.82). Internal consistency calculated via Cronbach's alpha reliability coefficient gave values of 0.93 for the subject groupings of 'Communications' and 0.94 for the subject grouping of 'Design'.

### ***Subject versus Student Responsibility/Freedom***

A high significance ( $p < 0.005$ ) value was recorded against the scale of Student Responsibility/Freedom when data was grouped by Subject, representing a 0.5% chance that the result has occurred by chance.

The Student Responsibility/Freedom scale was rated highest by students within 'Business' ( $n=821$ ) and 'Science' ( $n=64$ ) subjects with consecutive mean scores of 2.60 and 2.56. Students within 'Design' ( $n=11$ ) classes responded lowest against the same scale with a mean score of 1.94. The range between the maximum and minimum group mean scores is 0.66, and when the three extreme group mean scores are removed a smaller range of 0.22 (2.53 – 2.31) remains across the remaining four group mean scores.

***Subject versus Leadership and Understanding***

The Leadership and Understanding QTI behavioural scales recorded significance at a 99% confidence level ( $p < 0.01$ ) when student responses were grouped by Subject.

The Leadership scale was perceived highest by students who were studying 'Communications' ( $n=105$ ) Subjects with a grouped mean score of 3.24. Students studying 'Design' ( $n=11$ ) Subjects rated their teacher lowest against the same scale with a grouped mean score of 2.45. A range of 0.79 was recorded between these maximum and minimum grouped mean scores. When these maximum and minimum limit grouped mean scores are removed the range between the remaining grouped means scores is only 0.35 (3.15 – 2.80).

An internal consistency values of 0.94 was recorded for both the 'Communications' and 'Design' grouped mean scores. This suggests that students within each of the groups responded to the items of the Leadership behavioural scale in a similar way.

Students within 'Science' ( $n=64$ ) subjects rated their teachers highest against the behavioural scale of Understanding with mean scores of 3.29. Students of 'Design' ( $n=11$ ) classes rated their teachers lowest against the same scale with mean scores of 2.40; a range of 0.89 between the maximum and minimum grouped mean values. With these maximum and minimum values removed a range of only 0.25 (3.23 – 2.98) exists amongst the remaining five grouped mean scores of Subject. Internal consistency values of 0.89 and 0.98 were recorded for the respective Subject groupings of 'Science' and 'Design'.

***Subject Summary***

The next section of this chapter will present data towards the associations between students perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment based upon four categories of Period of Study.

***Differences in student perception based upon Period of Study***

75.7% ( $n=993$ ) of students were recorded as studying at their respective pathway educational provide for '1 year or less', 18.1% ( $n=237$ ) for '1 to 2 years', 2.4%

(n=32) for 2 to 3 years and 3.8% (n=50) for '3 years or more'. The frequency composition of the sample group has been represented in Figure 5.17.

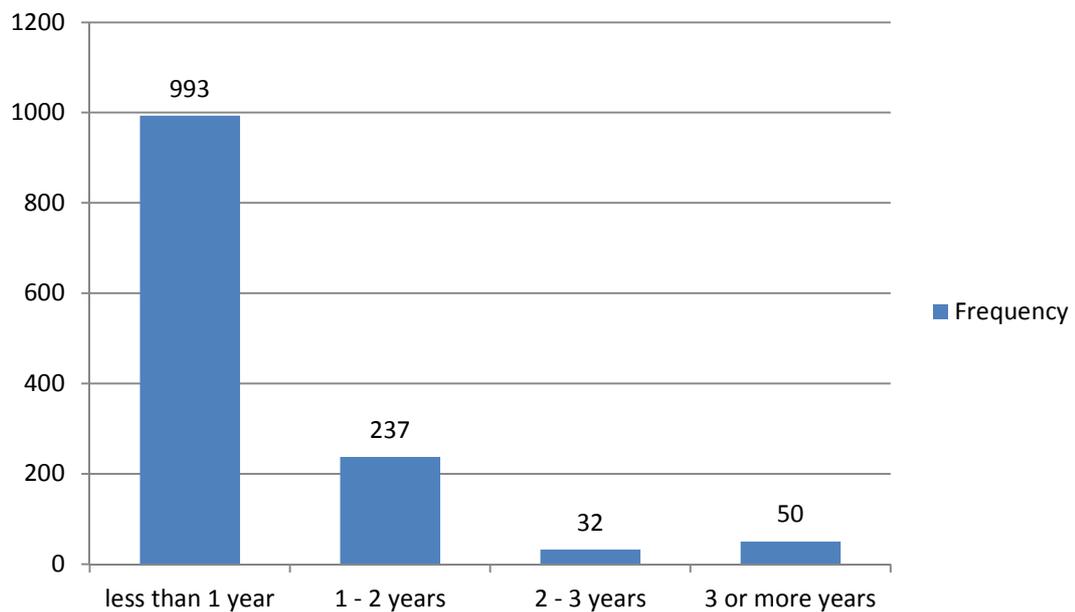


Figure 5.17: Frequency distribution based upon Period of Study

A summary of table of mean scores, F values and significance testing outcomes have been tabulated (Table 5.10) against the eight behavioural scales of the QTI based on the groupings of Period of Study.

Table 5.10: ANOVA analysis of the eight scores of the QTI based upon Period of Study

Scale	Grouped Mean Scores - Period of Study				F value
	3 years or more	2 - 3 years	1 - 2 years	less than 1 year	
Leadership	2.91	3.39	3.13	3.12	2.70****
Helping/Friendly	2.94	3.35	3.04	3.07	1.82
Understanding	2.95	3.49	3.17	3.22	3.58****
Student Responsibility/Freedom	2.20	2.49	2.56	2.55	2.33
Uncertain	1.32	0.70	1.14	0.93	4.59**
Dissatisfied	1.19	0.77	0.99	0.85	2.64****
Admonishing	1.11	0.59	0.86	0.78	2.11
Strict	2.23	2.35	2.23	2.14	1.23
N		50	32	237	993

\*\* $p < 0.005$

Total n=1312

\*\*\*\* $p < 0.05$

Significant was recorded in four of the eight scales of the QTI; namely the behavioural scales of Uncertain at  $p < 0.005$ , and Leadership, Understanding and

Dissatisfied at  $p < 0.05$ . Figure 5.18 provides a line graph to diagrammatically represent the mean scores within Table 5.10 (previous page).

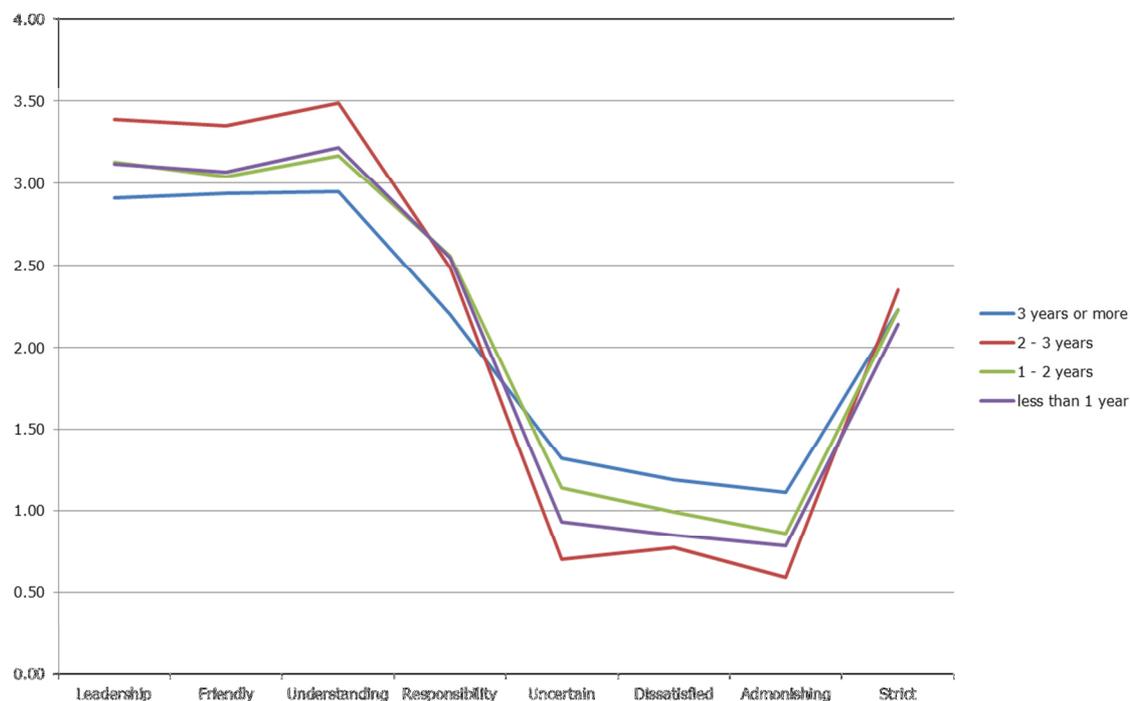


Figure 5.18: Grouped mean scores for each scale of the QTI based on Period of Study

It is observed that students within the Australian based international pathway learning environment within the '2 to 3 year' study period appear to rate their teachers highest against the positive behavioural scales of Leadership, Helping/Friendly and Understanding and the lowest against the negative scales of Uncertain, Dissatisfied and Admonishing.

Students within the '3 years or more' study period observed their teachers lowest against the positive behavioural scales and highest against the negative scales.

Those students in the Australian based international pathway environment for '1 year or less' and '1 to 2 years' rated their teachers in a similar way against the behavioural positive behavioural scales of Leadership, Helping/Friendly, Understanding and Student Freedom and Responsibility. However, students for a period of '1 to 2 years' appeared to rate their less Uncertain, Dissatisfied, and Admonishing; than students having been within the Australian based international pathway learning environment for '1 year or less'.

Further examination of scales identified as recording significant differences will be conducted in the following section. Mean scores of maximum and minimum groupings will be presented and Cronbach's alpha reliability coefficient values will be used to report upon each group against the respective scale.

### ***Period of Study versus Leadership***

The total scale mean score of for the scale of Leadership was 3.12. A confidence level  $p < 0.05$  represents a one in twenty chance that these observations would have occurred if the variables were unrelated.

Students having spent more than '3 years or more' ( $n=50$ ) in the pathway program rated their teachers lowest against the scale of Leadership with a grouped mean score of 2.91. Students having spent '2 - 3 years' ( $n=32$ ) within the pathway environment rated their teachers highest against the same scale with a grouped mean score of 3.39; a difference of 0.48 between the maximum and minimum grouped mean scores.

Using Cronbach's alpha reliability coefficient internal consistency values of 0.96 and 0.91 were recorded for the two semester groupings of '3 years or more' and '2 - 3 years'.

### ***Period of Study versus Understanding***

A significance value of  $p < 0.05$  indicates that the QTI behavioural scale of Understanding is related to a confidence level of 95% to the variable Period of Study.

The scale of Understanding had a scale mean score of 3.21 with students having spent '3 years or more' ( $n=50$ ) in the pathway program rating their teachers lowest against the scale of Understanding with a mean score of 2.95, and students having spent '2 - 3 years' ( $n=32$ ) within the pathway environment rating their teachers highest against the same scale with a mean score of 3.49; a difference between the maximum and minimum grouped mean scores of 0.54. Internal consistency values for the two groupings of '3 years or more' and '2 - 3 years' were 0.96 and 0.86 respectively.

***Period of Study versus Uncertain***

A high level of significance ( $p < 0.005$ ) was recorded between the QTI behavioural scale of Uncertain and the variable Period of Study.

A mean score of 0.98 was recorded for the scale of Uncertain against the variable of period of study. A range of 0.62 occurred between the maximum mean score groups. The maximum grouped mean score belonged to the '3 years or more' ( $n=50$ ) grouping rating their teachers highest with a mean score of 1.32 and an internal consistency value of 0.96. The lowest mean score group of '2 to 3 years' ( $n=32$ ) recorded a mean score of 0.70 and an internal consistency value of 0.98

***Period of Study versus Dissatisfied***

Significance at  $p < 0.05$  was recorded for the scale of Dissatisfied against the variable of Study Period.

A total mean score of 0.90 against the variable of Period of Study. The Period of Study grouping of '2 to 3 years' ( $n=32$ ) rated their teachers lowest against the Dissatisfied scale with a grouped mean score of 0.77, whereas the grouping of '3 years or more' ( $n=50$ ) rated their teachers highest against the same scale with a grouped mean score of 1.19. This represents a difference of 0.42 between the maximum and minimum grouped means scores. Internal consistency data for both the high and low grouped mean scores for the Dissatisfied scale was 0.96.

The next section of this chapter will now present data towards the associations between student perceptions of the Australian based learning environment based upon five the variable of 'attitude'.

**5.7 Qualitative data – Program of Study variables*****Region of Study***

The researcher has described within this study (chapter one and two) that a number of study location visited around the world provided a unique cultural and linguistic student population within the Australian based international pathway learning environment.

It is also noted that a majority of the data for the grouping of 'Other' when based on Region of Study were from students in an Australia based international college in Africa. Through a lived experience in working in Africa and in Australia it was observed by the researcher that teachers in Africa provided a more traditional teacher-led classroom environment than their Australian counterparts. In addition, it was also observed that teachers in Africa were also held in high regard and with reverence within the African culture.

### *Level of Study*

The researcher observed that the frequency of students enrolling in particular courses appeared to follow a pattern based upon ethnicity/language stereotyping. The researcher commented that a majority of Asian/Chinese students within the Australian based international pathway learning environment in Australia appeared to enrol in Business programs, while Arabic students appeared to enrol in Science/Engineering programs. The researcher also observed that students from some cultural backgrounds appeared to enter a Certificate IV level at the Australian based international pathway college, while students of other cultural backgrounds appeared to enter at a higher level (e.g. Diploma).

Auto-ethnographic evidence within this study has suggested students of particular language and cultural backgrounds were attracted to particular courses at Australian based international pathway colleges at different regions. Each campus location also has also been observed as having a selection of unique courses which have a unique Period of Study and unique Subjects.

As a participant observer, the researcher noted that each level of study a student undertakes within the Australian based international pathway learning environment has a particular Period of Study required to complete the pathway course.

It should be noted that the Australian based international pathway learning environment provides a framework of qualifications which allows for a scaffolding of learning dependent on the learners educational background (Adams, et al. 2009). Therefore providing a that suitable academic performance is maintained, a student will progress up the qualification levels over a period of time, and therefore the age

of the student correspondingly increases. Students originating from particular countries (Country of Citizenship) will enter at a particular level of qualification based upon their previous educational background and experience, and will also be of a particular age based upon the unique school leaving ages of particular countries.

### ***Subject***

Through researcher observation and lived experience within the Australian based international pathway learning environment it was noted that groups of Subjects collectively formed a particular Level of Study. As described earlier, the Age of a student entering the pathway learning environment was observed as being connected to the Age in which the student exited/graduate from their secondary education. The Age of a student exiting from their secondary education appeared to be connected to the educational system that the student held citizenship (Country of Citizenship).

A further relationship was also observed by the researcher. This relationship was between Subject and Period of Study. It was observed that the longer a student spends within the Australian based international pathway learning environment, the higher the Level of Study is achieved and so to the type of Subject changed.

### ***Period of Study***

Courses within the Australian based international pathway college were typically observed with a one year course duration. Some students were observed as studying one or more courses during their time within the Australian based international pathway college. In some instances students also received credit for prior learning, therefore reducing their overall period of time. Through researcher experience, it was observed that students whom had been within the pathway environment for more than three years tended to have failed one or more units and be disenchanted with their learning experience due to a range of reasons such as personal experience, academic capability and negative learning experience.

## **5.8 Chapter Summary**

Chapter Five has presented the analysis of grouped quantitative student data collected during the main component of this study. Further qualitative data from

students, and auto-ethnographic qualitative data from the researcher, has also been presented to support the outcomes of the quantitative data analysis based upon the groupings formed by the variables of this study.

Chapter six will use the research questions identified in chapter three to discuss and examine the quantitative and qualitative information recorded from chapters four and five. Comparisons between the qualitative and quantitative outcomes of this study will be compared to previous research identified in literature from chapter two. Chapter seven will reflect on each of the research questions, and formulate study outcomes drawn from discussions in chapter six. The chapter will also provide concluding remarks and statements. References and Appendices will close the thesis.

## Chapter Six

### Discussion and Findings

“Umntu ngumuntu ngabantu”

A person is a person because of other people”

(Zulu Proverb: English Translation)

#### 6.1 Introduction

Chapter one established the foundation and motivation to undertake this study.

Chapter two provided a review of literature on the Australian based international pathway education sector in Australia and the field of learning environment research.

Chapter three developed and provided a coherent approach and framework to the studies development and design.

Chapter four presented qualitative and quantitative information on student perceptions of the Australian based international pathway learning environment based upon a modified version of the Australian version of the QTI and an unchanged attitude to class scale derived from the TOSRA. This data was used to provide reliability and validity information.

Chapter five presented grouped QTI quantitative data used in chapter four to investigate associations in student perceptions the Australian based international pathway learning environment based upon Cultural Background, Age and Sex, and Program of Study. Further qualitative data from students and researcher was also presented against each of the variables of this study.

Chapter six will now discuss the outcomes of the qualitative and quantitative analysis of data presented in chapter four and five. Discussions will be distilled by systematically addressing each of the research questions presented in chapter three. For each research question, quantitative and qualitative data from chapter four and

five will be used for the purposes of triangulating research outcomes. Previous research in learning environments presented in literature from chapter two will be used to verify findings for each of the research questions.

## 6.2 Construct validity

This study used a multi-method approach to learning environment research which combines qualitative and quantitative methods. This approach has been successfully used and documented in similar learning environment studies (Waldrip & Fisher 1996a; Rickards 1998; Nair, 1999; Arambewela, 2003; Koul, 2003; NeSmith, 2003; Walker, 2003; Lawrence, 2004; Koek, 2005; Goh, 2005; Reid 2007; Madu, 2010; Tulloch, 2011). In undertaking the same process it is hoped that this study will contribute to the learning environment literature using this multi-method approach.

As discussed in chapter three, this study has sought to investigate associations between student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway environment and the nine introductory questions (variables) relating to Primary Language, Country of Birth, Country of Citizenship, Sex, Age, Region of Study, Level of Study, Subject, Period of Study and the seven item '*attitude to class*' scale based on the TOSRA.

This study provides the results of the first large scale international survey of Australian based international pathway learning environments combining both student qualitative and student quantitative data collection using a modified form of the 48 item short form of the Australian version of the *Questionnaire on Teacher Interaction* (QTI), in the form of the *International Questionnaire on Teacher Interaction* (IQTI).

Construct validity “is the degree to which a test measures the hypothetical construct” (Gay, 1992; p.157). The construct validity of a measure is established by demonstrating its place in a network of consistent findings, in which the meaning and interpretation of measures remain the same (Cronbach & Meehl, 1955; Messick, 1995). Construct validity is supported by using a number of strategies to demonstrate the validity of a test. According to Gall, Gall and Borg (2003)

triangulation is a means of collecting and using multiple data methods for the validity of qualitative research findings. For the purpose of this study, construct validity will be examined by triangulating student qualitative data and researcher auto-ethnographic account as a participant observer embedded in the learning environment of the study, to the student quantitative data findings in this study.

This thesis has been structured on the principles of construct validity, in which the method of collecting quantitative and qualitative student data collection described in chapter three and is presented in chapter four and five. Chapter six draws upon, and triangulates, student quantitative and qualitative data to formulate research outcomes.

Auto-ethnographic account from the researcher's perspective is presented throughout the thesis as it assists in the contextualisation of the learning environment for which the research is framed, further supplements quantitative and qualitative outcomes, and provides a further opportunity to triangulate data and formulate findings.

## **6.2 QTI scale outcomes**

Research Question 1 asked: *Is the IQTI used in this study a reliable and valid tool for the use within the Australian based international pathway environment?*

The IQTI tool used within this study combined a modified version of the short form of the 48 item Australian version of the QTI, with nine introductory questions and an 'attitude to class' scale.

### ***Pilot – Qualitative***

Qualitative data from the pilot study provided opportunities to modify the items of the QTI, and provided the first insight into student perceptions of the Australian based international pathway learning environment. Quantitative data from the pilot study provided evidence which suggested that students within this learning environment responded to the modified QTI items in a similar way, and supported the circumplex nature of the QTI behavioural scales.

The QTI behavioural scale items used in the quantitative main component of this

study were modified based upon qualitative and quantitative student data collected and analysed from a pilot study.

### ***Main - qualitative***

The qualitative data from the main study suggests that students responded in a similar way to the QTI behavioural scale of Leadership. A smaller group of student responses to the Leadership behavioural scale also appeared to incorporate language that encompassed scale descriptors used in literature (den Brok, Brekelmans, Levy, Wubbels, 2002) to describe the Helping/Friendly behavioural scale. These student comments described a teacher who is a leader but also assists and involves students, shows interest and creates a supportive learning environment in which students are taught in a different way. This observation is supported by the significant positive correlation recorded from the quantitative data analysis between the Leadership and Helping/Friendly behavioural scales in the pilot (see Table 4.9) and main (see Table 4.12) study, and supports the circumplex model of the QTI.

Students within the main study provided similar positive qualitative responses to the behavioural scale of Helping/Friendly. The language used by students to describe a helping and friendly teacher is closely aligned with language used to describe the Helping/Friendly behavioural scale in previous literature (den Brok, Brekelmans, Levy & Wubbels, 2002). The qualitative comments from students in this study is supported by the high internal consistency values recorded for the Helping/Friendly scale from the pilot (0.89) and main (0.92) study quantitative data. Another group of student responses incorporated language used in literature to describe the Helping/Friendly and Understanding behavioural scale. This observation is supported by a significant positive correlation reported in the pilot (see Table 4.11) and main (see Table 4.13) quantitative analysis between the Helping/Friendly and Understanding behavioural scales, which are adjacent to each other on the circumplex model of the QTI .

Qualitative student responses during the main study were observed as being similar for the Understanding behavioural scale. These responses are closely associated with the scale description of the Understanding behavioural scale in previous literature (Khine & Lourdasamy, 2006; den Brok, Brekelmans, Levy & Wubbels, 2002). The

qualitative data is supported in the quantitative student data analysis in which high internal consistency values of 0.86 in the pilot study and 0.93 in the main study were recorded.

When comparing the qualitative data presented in the main study for the Student Responsibility/Freedom behavioural scale, a majority of response reflected the language used in the Leary Model (Figure 2.2, 2.3) to describe the “Docile-Dependent” scale; which evolved into the Student Freedom/Responsibility behavioural scale in the QTI. In general qualitative responses from students were analogous to the Student Responsibility/Freedom behavioural scale descriptors provided in previous literature (Table 2.13). This observation from the main qualitative student data is supported in the quantitative student data in which high internal consistency values for the Student Responsibility/Freedom behavioural scale were recorded in both the pilot study (0.80) and main study (0.89).

The description by students, in the main qualitative data collection, of a timid teacher who has limited knowledge and is hesitant is akin to the description of the Uncertain behavioural scale in literature (Wubbles, 1993). The similarity in qualitative student feedback is supported by the high internal consistency values of 0.93 and 0.96 recorded for the Uncertain behavioural scale for the pilot and main quantitative analysis within this study. Some student responses reflect a classroom environment in which the uncertain teacher does not hold their attention or in which the classroom has no rules. This qualitative feedback provides evidence towards the oppositional relationship between the behavioural scales of Uncertain and Leadership on the circumplex mode of the QTI.

Select qualitative student comments during the pilot study such as “*words are too mean to students!*” when reflecting on the Dissatisfied scale, and “*I don’t like any of this words saying about teachers!*” when commenting on the Admonishing scale, provide evidence towards students hesitation to respond to negative aspects of teacher behaviour.

Researcher observation also reported student reluctance to contribute to discussions during the pilot study interviews. Reduced response rates in the main qualitative

study to the Admonishing behavioural scale, and a general tendency of students to reflect on positive aspects that negative teachers do not have, reiterate the student's disinclination to provide negative comments.

Quantitative data from both the pilot and main study for the negative scales of Uncertain, Dissatisfied and Admonishing scales recorded very low mean scale scores. Combined these quantitative and qualitative outcomes provide some insight into other variables which influence student perceptions of the Australian based international pathway learning environment.

Overall qualitative feedback from students during the main study to the Dissatisfied behavioural scale is reflective of the language used in previous literature descriptions (Table 2.13) of a dissatisfied teacher. This qualitative observation is supported in the quantitative data analysis in which alpha reliability values of 0.92 and 0.94 were recorded in the pilot and main study. Some qualitative student responses referred to language used in literature to describe the adjacent scales of Admonishing and Uncertain on the QTI circumplex model. This observation is supported in the quantitative analysis within this study; which indicates that these adjacent negative scales have a significant positive correlation with the Dissatisfied behavioural scale. The oppositional nature that positive behavioural scales have to the Dissatisfied behavioural scale within the circumplex model of the QTI (Figure 2.7) was also reflected in the qualitative data of this study. This relationship between the positive behavioural scales and the Dissatisfied behavioural scale is supported in the quantitative analysis in which a significant negative correlation was recorded between opposing scales.

The frequency of qualitative student responses against the Admonishing behavioural scale was lower than other scales, and reflects observations made by the researcher during the qualitative data collection during the pilot study (see section 4.2). Those students that did respond to the Admonishing behavioural scale did so in a similar way. The analysis of quantitative data also indicates that students responded to the items of the Admonishing behavioural scale in a similar way with alpha reliability values of 0.82 and 0.96 in the pilot and main study respectively. Typically responses to the Admonishing behavioural scale appeared to be a negative form of the language

used to describe the opposite and positive behavioural scale of Understanding. This representation of student comments is supported in the quantitative analysis where a significant negative correlation was reported between the Understanding and Admonishing behavioural scales. This also supports the circumplex model of the QTI and its use within the Australian based international pathway learning environment.

The qualitative student comments against the behavioural scale of Strict were more varied than any other behavioural scale. This may be supported through the slightly lower reliability value for the Strict behavioural scale compared to the other reliability values of the other QTI behavioural scales. It should also be noted that comparable results were also recorded during the quantitative data analysis from the pilot study (Table 4.10). It is also noted that previous research (see Table 3.1) has also generally identified a lower reliability for the Strict behavioural scale.

#### ***Quantitative – Pilot and main study***

Using the scale mean scores, Cronbach's alpha reliability coefficient (Cronbach, 1951) was used to investigate internal consistency of quantitative student responses to the items of each of the eight behavioural scales of the QTI in both the pilot and main study. High internal consistency values presented in the pilot study and the main components of this study were within reliability values presented in previous literature. This analysis would suggest that students from within the Australian based international pathway learning environment, participating in the pilot and main study, responded to the modified items of each of the eight behavioural scales of the QTI in a similar way.

Table 6.1 on the next page compares internal consistency data from this study with previous studies (Fisher, den Brok & Rickards, 2006; Khine & Lourdusamy, 2006). This quantitative data comparison would suggest that the internal consistency values recorded for each of the eight behavioural scales of the QTI within this study are consistent with reliability values recorded in previous research utilising the QTI.

*Table 6.1: Summary comparison of internal consistency data from this study and previous research*

QTI behavioural scales	This Study		Previous research*
	Pilot Study	Main Study	
Leadership	0.86	0.92	0.76 – 0.93
Helping/ Friendly	0.89	0.92	0.83 – 0.96
Understanding	0.86	0.93	0.76 - 0.95
Student Responsibility/Freedom	0.80	0.89	0.50 – 0.82
Uncertain	0.93	0.96	0.70 – 0.87
Dissatisfied	0.92	0.94	0.77 – 0.93
Admonishing	0.82	0.96	0.80 – 0.87
Strict	0.73	0.85	0.49 - 0.80

Adapted from. Fisher, den Brok & Rickards, 2006; Khine & Lourdasamy, 2006

All alpha reliability values reported in this study are greater than 0.60 which according to Nunnally (1978) provide an acceptable level of reliability when the individual is used as the unit of analysis. Using George and Mallery (2003) “rules of thumb” the alpha values reported from the pilot study are within the range of ‘Acceptable’, and alpha values reported from the main study are ‘Good’. Wubbels, Crèton, Brekelmans and Hooymayers (1991) and Wubbels and Levy (1991; 1993) have generally found levels above 0.80 for each scale appropriate for intra-class correlation studies.

Interscale correlation (Table 4.14; Figure 4.2) information presented within the main study of this thesis indicates a circumplex relationship between each of the scales of the QTI. A similar observation can be made using the pilot quantitative data (Table 4.14; Figure 4.1). When comparing this observation to a previous study (Figure 3.1; adapted from Wubbels, Crèton, & Hooymayers, 1985) the circumplex nature of the model, in which the neighbouring scales are correlated more closely than those scales opposite, is supported.

Qualitative data reported from students during the pilot study and the main study captured this relationship where students choice of language to describe one scale, also incorporated language to describe an adjacent scale. Other qualitative data

reported in both the pilot and main study also reflected the reverse nature of opposite scales.

This information reinforces the theoretical circumplex model of the QTI (Wubbels, Brekelmans & Hooymayers, 1991) and its use within the Australian based international pathway learning environment. Of the 24 potential relationship possible across any two of the eight behavioural scales of the QTI, 20 pairs of behavioural scales recorded significance ( $p < 0.01$ ) and only four combinations recording no significant correlation in this study. The four pairs of QTI behavioural scales which did not record significance were between the Helping/Friendly and Strict scales, Understanding and Strict scales, Student Responsibility/Freedom and Dissatisfied scales and Student Responsibility/Freedom and Admonishing scales.

Validity is demonstrated through the triangulation of similar outcomes from the pilot and main quantitative and qualitative outcome components from this study. Reliability is demonstrated through the high internal consistency values reported in both the pilot and main study, which indicates that students responded in a similar way. Furthermore, comparisons drawn from the outcomes of this study, to those identified in previous learning environment research, further inform this study the reliability and validity of the IQTI tool for the use within the Australian based international pathway environment.

The next section of this chapter will discuss the associations between student perceptions of the teacher-student interpersonal behaviour within the Australian based international pathway learning and Cultural Background, Age, Sex, Program of Study.

### **6.3 Variable outcomes**

Quantitative and qualitative information has also been presented within this study based upon the nine introductory questions of the IQTI.

### 6.3.1 Cultural Background

Investigation into associations between student perceptions of the teacher-student interpersonal behaviour within the Australian based international pathway learning environment and Cultural Background is framed by three research questions on Primary Language, Country of Birth and Country of Citizenship.

The next part of this chapter will now draw outcomes from the quantitative data analysis based upon the grouping of Primary Language.

#### *Primary Language*

Research question two asked: *What associations exist between student perceptions of the Australian based international pathway learning environment and Primary Language?*

Significance was detected in five of the eight QTI behavioural scales when the quantitative student data was grouped into nine categories of Primary Language. High Cronbach alpha reliability coefficient values (Section 5.2) were recorded for each of the maximum and minimum groupings of Primary Language for each of the QTI behavioural scales indicating significance. This information suggests that students within these Primary Language groups responded in a similar way to each of the items of the QTI behavioural scales representing significance.

In comparing the grouped mean scores, 'African', 'Asia/India', 'French' and 'English' Primary Language students rated their teachers higher against the positive scales and lower against the negative scales. 'African' students rated their teachers the highest against the Strict behavioural scale. 'Arabic' students rated their teachers lower against the positive behavioural scales, and higher against the negative scales. 'Asia/China' and 'European' students perceived their teachers higher across all eight behavioural scales, whilst 'Other' Primary Language students perceived their teachers lower across all eight behavioural scales.

It is interesting to note that the scales of Uncertain, Student Responsibility/Freedom and Strict which recorded a higher level of significance also had the greatest

variability between the maximum and minimum grouped mean scores of 0.99, 0.84 and 0.64 respectively. It is also noteworthy that the scales of Strict (from the 'Dominance' dimension) and Student Responsibility/Freedom (from the 'Submission' dimension) are represented as opposite scales on the circumplex model of the QTI.

If the maximum and minimum mean Primary Language grouped scores were removed from each of the QTI scales indicating significance, in most cases the range between the remaining grouped mean scores is almost halved. High internal consistency values reported for the maximum and minimum group's gives confidence towards consistency of grouped student responses to the respective QTI behavioural scale.

The next part of this chapter will now draw outcomes from the quantitative data analysis based upon the grouping of Country of Birth and Country of Citizenship.

### ***Country of Birth and Country of Citizenship***

Research question three asked: "*What associations exist between student perceptions of the Australian based international pathway learning environment and student cultural background?*"

All behavioural scales of QTI recorded significance when student data was grouped by Country of Birth; with the behavioural scales of Student Responsibility/Freedom, Uncertain, Dissatisfied and Admonishing recording the highest significance ( $p < 0.001$ ). It was against the negative scales of Uncertain, Dissatisfied and Admonishing that the greatest range between the maximum and minimum grouped mean scores was recorded (1.08, 1.80 and 2.20 respectively). When the maximum and minimum grouped mean scores were removed, it was noted that the range between the remaining Country of Birth grouped mean scores for each of the QTI behavioural scales was more than halved.

High internal consistency values recorded for each maximum and minimum Country of Birth grouped mean scores to each of the QTI behavioural scales. This indicates that students within each grouping responded to the individual items of each of the

QTI behavioural scales in a similar way.

Quantitative data when grouped by Country of Birth indicates that 'African', 'Australia/NZ', 'Asia/India', 'Southern Asia' and 'Other' students all perceived their teachers positively by rating them higher against the positive scales, and lower against the negative scales. 'African' students appeared to rate their teachers higher against the Strict scale. 'Americas', 'European' and 'Middle East' grouped students tended to rate their teachers lower against the positive scales and higher against the negative scales with students of 'Americas' rating their teachers the highest against the Strict scale. 'Asia/China' and 'Northern Asia' students tended to rate their teachers higher against all eight behavioural scales.

Seven out of eight QTI behavioural scales recorded significance when student responses were grouped based upon the variable of Country of Citizenship. It was similarly noted that those behavioural scales expressing a higher significance level are also the same scales which reported the greatest range in maximum and minimum grouped mean scores. When these maximum and minimum mean group scores were excluded the difference between the remaining grouped means scores greatly reduced.

High internal consistency values recorded for maximum and minimum groupings of Country of Citizenship for each of the respective QTI behavioural scales gives confidence towards the interpretation of results. 'Europe' and 'Asia/China' consistently provided higher values against all the behavioural scales, while the Country of Citizenship grouping of 'Other' rated their teachers lower against all eight scales, and lowest against the scale of Strict.

'Middle East' Country of Citizenship recorded the lowest values against the scales of Leadership, Helping/Friendly and Understanding and the highest values against the negative scales of Uncertain, Dissatisfied and Admonishing, with 'Africa; students rating their teachers highest against the Strict scale. Overall 'Australia/NZ', 'Asia/India', 'Asia', and 'Asia-Indonesia', 'America's and 'Africa' students provided similar ratings against the positive and negative behavioural scales.

In combining the outcomes of the Primary Language, Country of Birth and Country of Citizenship groupings the data would suggest three consistent observations; that students of a Middle Eastern origin appeared to perceive their teachers as less of a leader; African students appeared to perceive their teachers as being strict; while America's students perceived their teachers as more dissatisfied and admonishing.

In chapter three and chapter five, the researcher provided an account of the qualitative data collection process, in which students referenced language dictionaries to assist in the interpretation and understanding of terminology within the items of the QTI. It was also during these qualitative data collection processes that students were observed as forming groups based upon language.

The researcher provided an account of a number of experiences with students of differing cultural background within the Australian based international pathway environment. A reflection of an experience of teaching a majority Asian group of students in an Australian based international pathway environment in Australia the researcher observed that these students preferred to conform and appeared intimidated by the authority of a teacher. Lu et. al. (2010) suggest that modesty and compliance are traits of students from Confucian-heritage cultures. Other studies (Pre-Pau, 1994; Song, Kwan Bian, Tai & Wu, 2005) suggest that there is an emphasis on student respect for teachers and teacher dignity in China.

Another experience in an offshore Australian owned international pathway environment gave insight into perceptions of African students who were unaccustomed to strict enforcement of academic rules, possibly given due to the difficulties of life encountered in Kenya. Furthermore, the researcher interviewed a student and staff member of a UK based international pathway learning environment who elicited how his perception of leadership was influenced by religion. Guimba et al. (2011) indicate that a leader, from an Islamic perspective, is distinguished from their followers by knowledge and commitment to Islamic principles and possession of superior moral values. Qualitative feedback from a student in Canada and an interview with a student having been within the Australian based international pathway environment suggested that teachers in Canada were more involved in students' lives including sports and recreational activities and that teachers were like

friends.

A group of people can proclaim to be a national or ethnic community based upon commonalities such as religion, ethnicity, history language and origins (Vesna, 2010) in which people of the same culture will interpret these values in a similar way (Banks & McGee Banks, 1989). Literature has identified that differences in culture is a primary factor affecting international students' success (Volet, 1999; Watkins & Biggs 1996; Tang 1996; Kirby, Woodhouse and Ma 1996; Weiland & Nowak, 1999), within the English language environment while, research into teacher-student interpersonal behaviour within other multicultural learning environments has indicated that language has been recorded as an influencing factor (Levy et al., 1997; Rickards, Fisher, 1999; Rickards, 1998; Young, 1998; Ballard, 1987; Ballard & Clanchy, 1997; Ryan & Hellmundt, 2003).

Literature also suggests that an increased cultural awareness helps increase tolerance and achieve cultural sensitivity and empathy and broadens learner's minds (Sawir, 2006; Tomlinson & Musuhara, 2004) in which academic staff need assistance in assessing the development of international perspectives in students.

This study as provided a unique insight into students of teacher-student interpersonal behaviour within the Australian based international pathway learning environment based upon three cultural background variables of Primary Language, Country of Birth and Country of Citizenship. The outcomes of grouped responses based upon each of these three cultural background variables demonstrates the change in influence each cultural variable has on student's perception of the international pathway learning environment.

The next part of this chapter will now draw outcomes from the quantitative and qualitative data analysis based upon the grouping of Sex and Age.

### **6.3.2 Sex and Age**

#### ***Sex***

Research question four asked: *What associations exist between student perceptions*

*of the Australian based international pathway learning environment and Sex?*

Student responses to the QTI behavioural scales of Uncertain, Dissatisfied, Admonishing, Understanding and Strict reported significance ( $P < 0.001$ ) when student data was grouped based upon Sex.

High alpha reliability values recorded for maximum and minimum groupings of respective QTI behavioural scales indicating significance suggests that students within each group responded in a strongly similar way to the six items of each respective QTI behavioural scale.

In general female students perceived their teachers in a more positive manner than their male counterparts on the three scales of Uncertain, Dissatisfied and Admonishing. Male students perceived their teachers as more Strict, whereas female students perceived their teacher as more Understanding.

Qualitative data collection supports these quantitative findings. Qualitative student responses such as “*no, from my point of view most of female student respect the teacher more than male students*” and “*No, I think female students see their teacher as sure of themselves.*” contribute towards this study that indicates that female students perceive their teachers more positively within the Australian based international pathway learning environment.

The researcher also observed, as a teacher in Australian based international pathway college, that female students seemed to have a more positive perspective and appeared to be more inclined to get on with their work, to participate in a positive way in group work and completed homework on a more regular basis.

Reflection on literature finds that learning environment research (Moos, 1979; Owens and Straton, 1980; Byrne, Hattie and Fraser, 1996; Lawrenz, 1987; Keeves and Aikenhead, 1995; Keeves and Kotte, 1995; Friedler & Tamir, 1990; Husén, Fägerlind, & Liljefors, 1974; Jegede & Obekukola, 1992; Parker, Rennie, & Fraser, 1996; Rickards, 1998) has reported differences in student perceptions of learning environments based upon sex.

The following section will discuss associations between perceptions of students of the Australian based international pathway learning environment based upon the variable of Age.

### *Age*

Research question five asked: *What associations exist between student perceptions of the Australian based international pathway learning environment and Age?*

In general, the grouped quantitative data analysis indicated that students perceived their teachers in a similar way when grouped by Age. A low significance ( $p < 0.05$ ) was observed against the QTI behavioural scales of Uncertain and Dissatisfied when student responses were grouped by the variable of Age.

High alpha reliability values were recorded for maximum and minimum Age groupings against the QTI behavioural scale of Uncertain and Dissatisfied (Section 5.4). This suggests that students within each group responded in a strongly similar way to the six items of each of the respective QTI behavioural scales demonstrating significance.

In general students aged '21 – 23' rated their teachers higher against the positive and negative scales, whilst the '27 and older' students rated their teachers lower against the positive and negative scales. The remaining age groups of '15 – 17', '18 - 20', '24 – 26' appeared to rate their teachers in a relatively similar way.

The researcher also provided an account of interacting with students of varying age within the Australian based international pathway learning environment. Within this learning environment the researcher observed that his own teacher-student interactions varied based upon student age.

Research in the USA (den Brok, Levy, Rodriguez & Wubbels, 2002; den Brok, Levy, Wubbels & Brekelmans, 2003) suggests that students' perceptions of their teacher are associated with age amongst other variables, whilst Lawrenz (1987) found that differences in perceptions of the classroom psychological environment became more obvious as student age increase. Levy, Wubbels and Brekelmans

(1992) have concluded contradictory findings in which student age was found to be unrelated to the dimensions of influence and proximity, while later studies (Levy, Wubbels, Brekelmans & Morganfield, 1997) indicated that significant relationships do exist between age and the QTI scales, with findings that older students perceived their teachers as being more dominant.

The next section of this thesis will discuss associations between perceptions of students of the Australian based international pathway learning environment based upon the program of study variables of Region of Study, 'Program of Study', Subject and Period of Study.

### **6.3.3 Program of Study**

This study sought to examine associations in student perceptions of the teacher-student interactions within the Australian based international pathway learning environment based upon Program of Study. This study identified four components that may inform Program of Study: namely the Region of Study, Level of Study, Subject and Period of Study.

#### ***Region of Study***

Research question six asked: *What associations are there between student perceptions of the Australian based international pathway learning environment and their location?*

Significance ( $p < 0.001$ ) was reported for the QTI behavioural scales of Leadership, Student Responsibility/Freedom, Uncertain, and Strict, and for the behavioural scale of Dissatisfied ( $p < 0.05$ ) when student responses were grouped by the variable of Region of Study. High alpha reliability values recorded for maximum and minimum groupings of respective QTI behavioural scales indicating significance suggests that students within each group responded in a strongly similar way to the six items of each respective QTI behavioural scale.

Quantitative data suggests that students studying within 'Australia' rated their teachers more positively as they saw their teachers as more Helping/Friendly

providing more Student Responsibility/Freedom, however these students also saw their teachers as more Uncertain and Dissatisfied compared to students studying outside Australia. Students studying outside Australia saw their teachers as having better Leadership, as less Uncertain and also as being more Strict.

As discussed within this study, a majority of student responses from outside of Australia were students studying within an Australian based international pathway college in Kenya. This Australian based international pathway college in Kenya was observed by the researcher (Section 1.2.3) as having students of a majority African origin, who in the 'African' Primary Language, 'Africa' Country of Birth, and 'Africa' Country of Citizenship rated their teachers higher against the scales belonging to the 'Dominance' dimension and lower against the scales belonging to the 'Submission' dimension. This large proportion of students from an African origin in the 'Other' Region of Study grouping may have influenced the relationships that exist based upon the variable of Region of Study.

Identifying different locations follows on from previous research into teacher-student interpersonal behaviour between learning environments in Singapore and Australia (Fisher et.al, 1997), the Netherlands, Australia and the USA (Levy, et al. 1993), Brunei and Australia (Rickards, et al., 1997), Australia, Brunei, Slovakia, Singapore and the USA (den Brok et al., 2003) and between Norway and Wales (Van Oord & den Brok, 2004) which have detected differences in student perceptions of teacher – student interaction based upon study location.

The next section of this chapter will now discuss associations between perceptions of students of the Australian based international pathway learning environment based upon the variable of Level of Study.

### ***Level of Study***

Research question seven asked: *What associations exist between student perceptions of the Australian based international pathway learning environment and Level of Study?*

Significance ( $p < 0.005$ ) was observed for the QTI behavioural scales of Understanding and Student Responsibility and Freedom, and at  $p < 0.05$  for the behavioural scales of Helping/Friendly and Uncertain when student data grouped by Level of Study. High alpha reliability values were recorded for maximum and minimum Level of Study groupings against the QTI behavioural scale indicating significance. This suggests that students within each group responded in a strongly similar way to the six items of each of the respective QTI behavioural scales demonstrating significance when grouped by Level of Study.

Based on the variable of Level of Study students views of their teachers Leadership, Helping/Friendly and Understanding behavioural traits progressively increase across the Level of Study groupings of 'Diploma' to 'Advanced Diploma' and to 'Bachelor', with the exception of 'Certificate IV'. This trend is opposite across the behavioural scales of Uncertain, Dissatisfied and Admonishing.

In general it appears that student's perceptions of their teachers improve as they move up the course level from 'Diploma' to 'Advanced Diploma' to 'Bachelor' level; however the 'Certificate IV' does not appear to follow this observed trend.

The next section of this chapter will discuss associations between perceptions of students of the Australian based international pathway learning environment based upon the variable of Subject.

### ***Subject***

Research question eight asked: *What associations exist between student perceptions of the Australian based international pathway learning environment and Program of Study?*

The behavioural scales of Friendly/Helping and Student Responsibility and Freedom recorded significance at  $p < 0.005$ , while the Leadership and Understanding scales recorded a lower significance of  $p < 0.01$  when student data was grouped by Subject. High internal consistency values were recorded for those maximum and minimum groups to each of the behavioural scales indicating significance which suggests that

students within each grouping responded to the items of the respective QTI behavioural scale in a similar way.

Data analysis suggests that students within 'Design' classes observed their teachers as less of a leader, less helping and friendly, less understanding but more dissatisfied and admonishing or intolerant. 'Science' and 'Communications' classes were rated highest against the positive behavioural scales of Leadership, Helping/Friendly and Understanding, and lowest against the behavioural scales of Uncertain, Dissatisfied and Admonishing. In general students within a 'Science' and 'Communications' class perceived their teachers in a more positive manner than students within a 'Design' classes.

Previous research into student perceptions of learning environments has found that differences exist against the variable of subject (den Brok et al., 2002; den Brok et al., 2003; den Brok et al., 2009; Fraser, 2002 Jegede, et al., 1998; Newby & Fisher, 1997).

The next section of this chapter will discuss associations between perceptions of students of the Australian based international pathway learning environment based upon the variable of 'Period of Study'.

### ***Period of Study***

Research question nine asked: *What associations are there between student perceptions of the Australian based international pathway learning environment and semester start date?*

Significance was recorded in four of the eight scales of the QTI when student data was grouped by Period of Study. These were the QTI behavioural scales of Uncertain ( $p < 0.005$ ), and Leadership, Understanding and Dissatisfied ( $p < 0.05$ ). High internal consistency values reported for grouped student data based upon Period of Study for each of the QTI behavioural scales indicating significance, suggests that students responded to the items of the respective QTI behavioural scales in a similar way.

Based on the variable of Period of Study, students who had been within the Australian based international pathway learning environment for a period of two to three years, perceived their teachers more positively than the other groupings (Table 4.14).

The quantitative data suggests that student perceptions of teacher-student interpersonal behaviour may improve from the first and second year, to the second and third year. Students having been in the pathway education environment for three years or more perceived their learning environment as being more negative compared to all other groups.

The next section of this chapter will discuss the associations between student perceptions of the teacher-student interpersonal behaviour within the Australian based international pathway learning and Attitude.

#### **6.4 Attitude outcomes**

Research question ten asked: *What associations exist between student perceptions of the Australian based international pathway learning environment and Attitude?*

Qualitative comments from students relating to their enjoyment of class suggested that achievement and interest was what made classes enjoyable. Comments such as *'after realising answers of questions i don't know, i feel achieved'* and *'The learning process itself and knowing that this will lead to a positive outcome in the future.'* reflect this sense of interest and achievement. It is interesting to note that these qualities are also identified in the *'attitude to class'* scale used in this study.

Using simple correlation analysis between student responses to the *'attitude to class'* scale and the QTI behavioural scales identified that the Leadership, Helping/Friendly, Understanding and Student Responsibility/Freedom provided positive associations to attitude, whilst Uncertain, Dissatisfied and Admonishing provided negative associations to attitude.

Using beta weightings, significant positive correlations were recorded with attitude against the scales of Leadership and Helping/Friendly and a significant negative correlation was recorded against the behavioural scale of Uncertain.

This data would suggest that that an increased '*attitude to class*' exists when teachers demonstrate positive behavioural traits associated with the QTI scales of within the Dominance/Cooperation dimensions, and less of those characteristics representative of the QTI scales within the Submission/Opposition dimensions.

Qualitative data suggests that student enjoyment of classes is linked to positive teacher behavioural characteristics. Student comments relating to study enjoyment such as "*when I get a teacher who can explain the material very well and also be friendly*" and "*a standard curriculum -what is taught is what is examined*", "*The process of seeking knowledge and the way to work as a group with the others from different countries*" and "*when teacher teaches us in a happy and jolly mood*" link student enjoyment to the QTI behavioural scales of the 'Dominance/Cooperation' dimensions.

Qualitative student data acquired in relation to student intent also reflected a positive attitude in which students embraced and saw the benefits of the Australian-based international pathway environment which provided an international and multicultural experience. '*Cross multicultural environment will enable me interact well in business on multiraces and cultural environment*' and '*I want to get new experience in new ways of teaching, with different academic environment. Also to get international and world wide skills from my studies*' are just a few of the student comments from students which support this statement.

Students studying within an Australian based international pathway learning environment also knew what they wanted to achieve after their studies with many wanting to gain employment, to continue with further study and/or to gain residency in Australia.

The next section of this chapter will discuss the IQTI as a suitable tool for use within the *Australian based international pathway environment*.

## 6.5 The IQTI tool within the Australian based international pathway learning environment

Research Question eleven asked: *Can the IQTI provide suitable information for the purposes of Australian based international pathway institutions to reflect on learning environments?*

Literature presented in chapter two presented learning environment research which has focussed upon the development of instruments towards supporting teaching and learning environments and teacher professional development (Anstine-Templeton & Nyberg, 1997; Caruana & Hanstock, 2003; Fraser, 1986; Fraser, Walberg, Welch & Hattie, 1987; Lourdusamy & Khine, 2001; Khine & Lourdusamy, 2005; Ratnaike, 1985; Rickards, 2003; Taylor, Fraser & Fisher, 1997).

Literature has also identified that discourses of internationalisation within institutions requires the development of tools to assist in teacher professional development to allow improvement in teaching practice (Leask, 2005a). Other research has also identified the need for teacher development in relation to cross-cultural teaching and international student's perceptions and experience of the international dimension in their learning (Caruana & Hanstock, 2003).

The IQTI tool used in this study has provided a large amount of quantitative data on student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment. This tool has collected and analysed student responses from within the Australian based international pathway learning environment upon based upon a modified set of QTI behavioural scale items derived from the 48 item short form of the Australian version of the QTI, and an unchanged '*attitude to class*' scale derived from the TOSRA. Quantitative data from this study has been analysed and compared with previous learning environment research using the 48 item short form of the Australian version of the QTI and the '*attitude to class*' scale derived from the TOSRA.

Qualitative data from students and the researcher has provided the opportunity to triangulate the studies outcome and demonstrate the construct validity of IQTI tool.

The suitability of the IQTI tool for use within the Australian based international pathway learning environment will be determined upon the tools ability to inform and contribute to determining the outcomes of the research questions of this study.

## **6.6 Chapter Summary**

This chapter has provided discussions on a large amount of quantitative data and qualitative data from chapter four and five of this these. Literature from chapter two has also been used to reflect and compare outcomes to those found within previous research.

The next and final chapter of this thesis will provide findings and concluding statements against the eleven research questions from this study, with additional deliberation on the implications of the study, future study opportunities and concluding remarks.

## Chapter Seven

### Conclusions

*Let us think of education as the means of developing our greatest abilities, because in each of us there is a private hope and dream which, fulfilled, can be translated into benefit for everyone and greater strength for our nation.*

John F. Kennedy

Chapter Seven will present the findings and conclusions from the analysis and discussion of the qualitative and quantitative data from this study. The main purpose of this chapter is to methodically present findings associated with each of the research questions and to provide outcomes from this study.

### 7.1 Introduction

The purpose of this study was to use student perceptions of teacher-student interpersonal behaviour to provide information about the Australian based international pathway learning environment.

This unique and long term study provides the first examination of student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment. Triangulation of data occurred by collecting both qualitative and quantitative student data and the perceptions and experiences of the researcher provided another unique and lived perspective for the analysis for this study. This process relied on a theoretical process informed by the idiosyncratic view that each person has of the environment that is shared as a member of the group (Watzlawick, Beavin & Jackson, 1967). An auto-ethnographic account from the researcher based upon an embedded, lived and worked experience within the Australian based international pathway learning environment in Australia and the Australian owned international pathway learning environment offshore provided a unique perspective and qualitative data for this study.

This chapter provides a summary of the significance of and outcomes from this study

against each of the research questions with concluding remarks and a brief discussion on possible areas for future research.

## 7.2 Key findings from the study

The following section will now present conclusions based upon analysis of the outcomes of the study in terms of the research questions.

*Research Question One: Is the IQTI used in this study a reliable and valid tool for the use within the Australian based international pathway environment?*

The IQTI tool used in this study, consisted of modified scale items of the short form of the Australian version of the QTI and unmodified ‘*attitude to class*’ scale derived from the TOSRA. When used in this study, both the modified QTI and the unchanged ‘*attitude to class*’ scale have been shown to be valid and reliable when used within the Australian based international pathway environment.

Literature describes that the QTI has been previously validated in a variety of learning environments (Fisher et al., 1996). Validity and reliability data generated from this study has been shown to have achieved the same outcomes as in previous learning environment research studies using the QTI. Qualitative data from students within the Australian based international pathway environment in the form of written responses, interviews and researcher observation, as well as auto-ethnographic account of lived experience has helped to validate and support the quantitative student data.

This study provides the first contribution to the literature that indicates that the IQTI tool, consisting of modified scale items of the QTI and an unmodified ‘*attitude to class*’ scale, have been shown to be valid and reliable when used within the Australian based international pathway environment.

*Research Question Two: What associations exist between student perceptions of the Australian based international pathway learning environment and Primary Language?*

As identified in the literature, language has been observed as influencing student experience (Koul & Fisher, 2005). The results of this study suggest that associations exist between students perceptions of teacher-student interpersonal behaviour within Australian based international pathway learning environment based upon Primary Language.

This study suggests that groups of individuals from a similar primary language background perceived the teacher-student interpersonal behaviour in a similar way within the Australian based international pathway environment. This study also suggests that groups of individuals from a similar primary language collectively perceived the teacher-student interpersonal behaviour in a different way to other primary language groups within the Australian based international pathway environment.

This study provides the first information to contribute to the available literature indicating that associations exist between student perceptions of teacher-student behaviour and Primary Language within Australian based international pathway learning environments. This is significant as there are practical implications for all who work in teaching in international pathway learning environments.

***Research Question Three:** What associations exist between student perceptions of the Australian based international pathway learning environment and student cultural background?*

Cultural background has been reported in literature as a potential reason for differences in student perceptions of teacher behaviour within the learning environment (Waldrip & Fisher, 2007). The results of this study suggest that associations do in fact exist between student perceptions of teacher-student interpersonal behaviour and their Country of Birth and Country of Citizenship within Australian based international pathway learning environments. This study suggests that groups of individuals from a similar Country of Birth or Country of Citizenship perceived the teacher-student interpersonal behaviour in a similar way within the Australian based international pathway environment. This study also suggests that groups of individuals from a similar Country of Birth or Country of Citizenship

perceived the teacher-student interpersonal behaviour in a different way to other Country of Birth or Country of Citizenship groups within the Australian based international pathway environment.

This study provides the first contribution to the literature that indicates that associations do exist between student perceptions of teacher-student behaviour within Australian based international pathway learning environments and student Cultural Background.

***Research Question Four:** What associations exist between student perceptions of the Australian based international pathway learning environment and student sex?*

Student perceptions of teacher-student interpersonal behaviour based upon sex has been well documented in literature (Rickards & Fisher, 2000b) and generally indicates that female students perceive their teachers behaviour in a more favourable way than their male counterparts. This study also suggests that males perceived the teacher-student interpersonal behaviour in different way to females within the Australian based international pathway environment. This study suggests that females generally perceived their teachers in a more positive way than their male counterparts.

This study provides the first information that indicates that associations exist between student's perceptions of teacher-student behaviour and Sex within Australian based international pathway learning environments.

***Research Question Five:** What associations exist between student perceptions of the Australian based international pathway learning environment and student age?*

Associations between student perceptions of teacher-student interpersonal behaviour based upon Age have been reported in literature (den Brok, Levy, Rodriguez and Wubbels, 2002; den Brok, Levy, Wubbels and Brekelmans, 2003) as indicating significance. This study suggests that groups of individuals from a similar Age perceived the teacher-student interpersonal behaviour in a similar way within the Australian based international pathway environment. This study suggests that groups

of individuals from a similar Age perceived teacher-student interpersonal behaviour in a similar way within the Australian based international pathway environment. This study suggests that groups of individuals from differing Ages perceived teacher-student interpersonal behaviour in a different way when compared to students in other age groups within the Australian based international pathway environment. This difference was mainly observed around the QTI behavioural scales of Uncertain and Dissatisfied in which older students tended to see their teachers less uncertain and less dissatisfied. Though not significant, it was also observed that older students viewed their teacher as being stricter which supports previous research (Levy, Wubbels, Brekelmans and Morganfield; 1997) which found that older students perceived their teachers as being more dominant.

This study provides the first information towards literature that indicates that associations exist between student's perceptions of teacher-student behaviour within Australian based international pathway learning environments based upon Age.

***Research Question Six:** What associations are there between student perceptions of the Australian based international pathway learning environment and their location?*

The results of this study suggest that associations exist between student perceptions of teacher-student interpersonal behaviour based upon the location of the Australian based international pathway learning environment. This study suggests that groups of individuals from a similar location perceived teacher-student interpersonal behaviour in a similar way within the Australian based international pathway environment. This study suggests that groups of individuals from differing locations perceived teacher-student interpersonal behaviour in a different way when compared to students in other location groups within the Australian based international pathway environment. Students studying within 'Australia' saw their teachers as more positive across the behavioural scales of Helping/Friendly and providing more Student Responsibility/Freedom; however these students also saw their teachers as more Uncertain and Dissatisfied than their counterparts studying outside Australia. Students studying outside Australia perceived their teachers higher against the dominance dimension scales of Leadership and Strict and lower against the submission dimension scales of Uncertain and Dissatisfied.

This study provides the first information towards literature that indicates that associations exist between student's perceptions of teacher-student behaviour within Australian based international pathway campus located in Australia and offshore.

***Research Question Seven:** What associations are there between student perceptions of the Australian based international pathway learning environment and their Program of Study?*

The results of this study suggest that there are associations in student perceptions of teacher-student interpersonal behaviour within the Australian based international pathway learning environment based upon the Program of Study. Students perceived their teachers more positively as the qualification level of program increased, with the exception of Certificate IV. This information may lead to further investigation within the Australian based international pathway education environment.

***Research Question Eight:** What associations are there between student perceptions of the Australian based international pathway learning environment and subject?*

The results of this study suggest that associations exist in student perceptions of teacher-student interpersonal behaviour within Australian based international pathway learning environments based upon subject. This study suggests that groups of individuals studying a subject perceived teacher-student interpersonal behaviour in a similar way within the Australian based international pathway environment.

This study also reports that groups of individuals studying differing subjects perceived teacher-student interpersonal behaviour in a different way within the Australian based international pathway environment. Students from 'Design' classes perceived their teachers more negatively compared to students studying other subjects such as 'Communications' and 'Science' classes. 'Science' and 'Communications' rated their teachers highest against the scales of Leadership, Helping/Friendly and Understanding, whilst student within 'Communications', 'Science' and 'Computing' students rated their teachers lowest against the scales of Uncertain, Dissatisfied and Admonishing.

This study provides the first information towards literature that indicates that associations exist between student's perceptions of teacher-student behaviour within Australian based international pathway learning environments based upon Subject.

***Research Question Nine:** What associations are there between student perceptions of the Australian based international pathway learning environment and semester start date?*

The results of this study suggest that there are associations in student perceptions of teacher-student interpersonal behaviour within Australian based international pathway learning environments based semester start date. Semester start date indicates the period of time a student has been within the Australian based international pathway learning environment. This study suggests that groups of individuals studying within the Australian based international pathway environment for the same period of time perceived teacher-student interpersonal behaviour in a similar way.

Another finding from this study, linked to time in the same learning environment, suggests that groups of individuals within the Australian based international pathway environment for varying periods of time perceived teacher-student interpersonal behaviour in a different way. Students having been within the pathway education environment for two to three years perceived their teachers more positively than other groupings. Students having been in the pathway education environment for three years or more perceived their learning environment as being more negative compared to all other groups.

This study provides the first information to support the literature that indicates that associations do exist between student's perceptions of teacher-student behaviour within Australian based international pathway learning environments based upon semester start date.

***Research Question Ten:** What associations are there between student perceptions of the Australian based international pathway learning environment and attitude?*

The results of this study suggest that associations exist between students perceptions of teacher-student interpersonal behaviour within Australian based international pathway learning environments based upon attitude. Attitude was found to be positively correlated to the positive QTI behavioural scales of Leadership, Helping/Friendly, Understanding and Student Responsibility/Freedom, whilst a negative correlation was found between student attitude and teachers demonstrating behaviour associated with the negative scales of Uncertain, Dissatisfied and Admonishing. Literature describes that the QTI has been previously validated in a variety of learning environments (Chang & Fisher, 2001a, Fraser & Lee, 2009; Rickards, 1998) and have found similar attitude outcomes as this study.

This study provides the first information towards literature that indicates that associations exist between student's perceptions of teacher-student behaviour within Australian based international pathway learning environments based attitude.

### **7.3 Implications of this study**

This study has made a unique and significant contribution towards the validation data for the QTI and the '*attitude to class*' scale of the TOSRA with a large sample of students studying within Australian based international pathway learning environments. This large sample provides a foundation and comparison for similar studies in the future.

This information also provides an avenue for further investigation into the important Australian based international pathway learning environment located in Australia or offshore.

***Research Question Eleven:** Can the IQTI provide suitable information for the purposes of Australian based international pathway institutions to reflect on learning environments?*

Against research question one, the modified QTI instrument and unchanged '*attitude to class*' scale used within this study have been shown to be a valid and reliable tool when used within the Australian based international pathway environment, in which

the outcomes from this study have been found to be similar to those in previous literature.

Against research question two and three the IQTI used within this study has been shown to detect associations between student perceptions of teacher-student interpersonal behaviour within Australian based international pathway learning environment and the variables of language and cultural background.

Against research question four and five the IQTI used within this study has been shown to detect associations between student perceptions of teacher-student interpersonal behaviour within Australian based international pathway learning environment and the variables of sex and age.

Research question six, seven, eight and nine for the IQTI used within this study detected and report associations between student perceptions of teacher-student interpersonal behaviour within Australian based international pathway learning environment and the variables related to the study location, level, subject, and period of period.

Research question ten when using the IQTI demonstrated associations between student perceptions of teacher-student interpersonal behaviour within Australian based international pathway learning environment and the variable of attitude.

The results of this study suggest that the IQTI tool used within this study is suitable to provide valid and reliable information about student perceptions of teacher-student interpersonal behaviour within Australian based international pathway learning environment.

This study provides the first constructive feedback to educators, administrators, and managers of Australian based international pathway environments on teacher-student interactions with a specific focus on language, cultural background, sex, age, program of study and attitude variables.

This study demonstrates the complex and multifaceted setting which exists within

Australian based international pathway colleges. Literature explored within this thesis highlights the importance of this study to international education research in terms of student support and equity.

It is apparent from this study, and supported via literature, that differences do exist between students of varying languages, cultures, age, sex, course and attitude, and it is likely that these variables, and more, contribute towards the overall student experience within Australian based international pathway learning environment.

The Australian based international pathway learning environment is composed of a diverse heterogeneous group of individual students. Teachers should be aware of and interact with students as individuals taking into account the findings from this study.

Due care and consideration should be given to the diversity of student language and cultural background which they bring to the Australian based international pathway learning environment, as these variables have now been shown to influence student perceptions of teacher-student interpersonal behaviour.

The composition of language and cultural background traits within a population of students within the Australian based international pathway learning environment is also influenced by the study location, the course and subjects of enrolment; as students of particular language and cultural groups are attracted to select courses.

Some courses attract students of a particular gender according to the masculinity/femininity of the field of study, while the age of a student entering the international pathway learning environment is unique based upon the educational system in which the student completed secondary studies.

Students perceive the teachers more favourably within the Australian based international pathway learning environment over time, until the third year of study in which this trend reverses. Teachers within the Australian based international pathway learning environment demonstrating more of the positive QTI behavioural

scale traits, and less of the negative traits were also shown to improve student attitude.

Teachers training and development of teaching and learning strategies within the Australian based international pathway learning environment, should explore and encourage an awareness of diversity within the student population and focus upon good teaching practices which reduces the detrimental interactional behaviours.

To improve attitude, teachers should ensure that the positive interpersonal behaviours of leadership, helping/friendly, understanding and student freedom/responsibility be present within their classes. These positive interpersonal behaviours are associated with constructive enquiry and cognition skills.

This research provides teachers with a practical means to investigate teacher-student interpersonal behaviour within the Australian based international pathway learning environment, thereby improving their teaching and learning environment (Fisher and Fraser, 1992) and the needs of students. Baird and White (1996) stated that an improvement in classroom teaching and learning must involve student and teacher while Leask (2005b) identified that the challenges of internationalisation need to be met with strategically planned professional development and student services for all students and staff.

The Australian international education sector continues to see an increase in complexity in educational and immigration frameworks and regulations within a volatile student market. Negative public media, student experience and satisfaction ratings also influence competing academic, economic and socio-cultural discourses of internationalisation (Leask, 2005b). It would therefore be apparent that an instrument which can lead to an improvement in teacher understanding of student's perceptions, and which may assist in the development of positive teacher-student interpersonal behaviour which is linked to an increase in student attitude, may become important towards institutional performance indicators.

#### **7.4 Future research opportunities**

The findings from this study, and the journey of the researcher, have motivated future directions for research into international learning environments.

Over the period of this study, being involved within the international pathway education sector in Australia, the United Kingdom and Kenya, and having become familiar with the literature on learning environments a number of observations have been made regarding the international educational sector.

Further contributions towards literature in relation to the Australian based pathway learning environment would be to investigate associations between student perceptions of teacher-student interactions and achievement, and what effect do the variables used within this study have on achievement.

Other contributions could include undertaking research with an aim of using multivariate, multilevel or factor analysis. Other opportunities include generating typologies of student perceptions of teacher-student interpersonal behaviour, undertaking studies using modified versions of teacher actual and preferred instruments and investigating the use of online learning environments within the Australian based pathway learning environment.

The emergence of state and private based dual sector providers (delivering both Vocational Education and Training and Higher Education) within Australia has created another unique learning environment in which students are attracted to one or more courses which contribute to a pathway to university study. Through researcher lived experience this unique learning environment also has a higher proportion of domestic (Australian) students within the population. This provides the opportunity to use the IQTI from this study with a new pathway student population.

Some university environments in Australia now have a large (up to 30%) international student population. Further contribution towards literature could include investigating associations between domestic (Australian) and international

student perceptions of teacher-student interactions and the variables identified within this study within the university learning environment.

Further research opportunities using the IQTI or other teacher-student interpersonal behaviour instruments also exist within the United Kingdom international education sector.

### **7.5 Concluding remarks**

This thesis presents the first large scale study involving associations between student perceptions of teacher-student interpersonal behaviour based on language, cultural background, age and sex, program of study and attitude in Australian based international pathway learning environments. Australian based international pathway colleges in Australia, Kenya, Canada, Sri Lanka and the United Kingdom have provided qualitative and quantitative data towards this unique multinational study.

The IQTI tool used in this study, consisting of modified scale items of the short form of the Australian version of the QTI and unmodified ‘attitude to class’ scale derived from the TOSRA, has been shown to be a valid and reliable tool when used within the Australian based international pathway environment. This study provides a unique learning environment tool for educators to use within Australian based international pathway learning environments.

The conclusions of this study are specifically applicable to Australian based international pathway learning environments, but are also broadly appropriate towards pathway, vocational, and higher education learning environments with a diverse student population. The data and findings from this study contribute towards the field of teacher-student interpersonal behaviour and learning environment research.

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## Appendices

### Appendix A: Questions used for qualitative feedback and example feedback form

Lead in discussion questions relating to the QTI behavioural scales.

- How would you describe a teacher who is a leader?
- How would you describe a teacher who is helping/friendly?
- How would you describe a teacher who is understanding?
- How would you describe a teacher who all student freedom or responsibility?
- How would you describe a teacher who is uncertain?
- How would you describe a teacher who is dissatisfied?
- How would you describe a teacher who is admonishing (intolerant)?
- How would you describe a teacher who is strict?

Student written response sheet

**Dominance**

***Leadership***

--

***Strict***

--

**Submission**

***Uncertain***

--

***Student Responsibility / Freedom***

--

**Cooperation**  
*Helping / Friendly*

--

**Understanding**

--

**Opposition**  
*Dissatisfied*

--

**Intolerance (Admonishing)**

--

**Appendix B: Example Stage I → II Questionnaire Development Notes**

**Scales of Influence Dimensions**

Existing Scale (Rickards, 1998)

Proposed scale for Research

**Dominance**

**Leadership**

			<i>In this class this teacher</i>					
1	1	The teacher talks enthusiastically about her/his subject.	talks enthusiastically about the subject	0	1	2	3	4
2	5	The teacher would explain things clearly.	explains things clearly to us	0	1	2	3	4
3	9	The teacher holds our attention.	holds our attention	0	1	2	3	4
4	13	The teacher knows everything that goes on in the classroom.	knows everything that goes on in the classroom	0	1	2	3	4
5	17	The teacher is a good leader.	is a good leader	0	1	2	3	4
6	21	The teacher acts confidently.	acts confidently	0	1	2	3	4

**Strict**

			<i>In this class this teacher</i>					
7	28	The teacher is strict.	is strict	0	1	2	3	4
8	32	We have to be silent in the teacher's class.	wants us to be silent during class	0	1	2	3	4
9	36	This teacher's tests are hard.	has tests that are unfair	0	1	2	3	4
10	40	The teacher's standards are very high.	has standards that are very high	0	1	2	3	4
11	44	The teacher is severe when marking papers.	is harsh when marking papers	0	1	2	3	4
12	48	We are afraid of the teacher.	makes us afraid	0	1	2	3	4

**Submission**

**Uncertain**

			<i>In this class this teacher</i>					
13	3	The teacher seems uncertain.	lacks confidence in this subject	0	1	2	3	4
14	7	The teacher is hesitant.	appears hesitant	0	1	2	3	4
15	11	The teacher acts as if she/he did not know what to do.	acts as if she/he does not know what to do	0	1	2	3	4
16	15	The teacher lets us boss her/him around.	lets the students take charge	0	1	2	3	4
17	19	The teacher is not sure what to do when we fool around.	would not be sure what to do when we are disruptive	0	1	2	3	4
18	23	It's easy to make a fool out of the teacher.	is unsure	0	1	2	3	4

**Student Responsibility / Freedom**

			<i>In this class this teacher</i>					
19	26	Students can decide some things in the teacher's class.	allows us to decide some things in class	0	1	2	3	4
20	30	We can influence this teacher.	can be influenced by us	0	1	2	3	4
21	34	This teacher lets us fool around in class	allows us to decide when we do work in class	0	1	2	3	4
2	38	This teacher lets students get away with a lot in class.	lets us get away with a lot in class	0	1	2	3	4
23	42	This teacher gives us a lot of free time in class.	gives us lots of free time in class	0	1	2	3	4
24	46	This teacher is lenient.	is flexible	0	1	2	3	4

**Scales of Proximity Dimensions**

Existing Scale (Rickards, 1998)

Proposed scale for Research

**Cooperation**

*Helping / Friendly*

			<i>In this class this teacher</i>					
25	25	This teacher helps us with our work.	helps us with our work	0	1	2	3	4
26	29	This teacher is friendly.	is friendly	0	1	2	3	4
27	33	This teacher is someone students can depend on.	is someone we can depend on	0	1	2	3	4
28	37	The teacher has a sense of humour.	has a sense of humour	0	1	2	3	4
29	41	This teacher can take a joke.	can take a joke	0	1	2	3	4
30	45	This teacher's class is pleasant.	is pleasant	0	1	2	3	4

*Understanding*

			<i>In this class this teacher</i>					
31	2	This teacher trusts us	trusts us	0	1	2	3	4
32	6	If we don't agree with this teacher, we can talk about it.	allows discussion on topics when we don't agree	0	1	2	3	4
33	10	This teacher is willing to explain things again.	is willing to explain things again	0	1	2	3	4
34	14	If we have something to say, the teacher will listen.	allows us to talk and the teacher will listen	0	1	2	3	4
35	18	This teacher realises when we don't understand.	realises when we do not understand	0	1	2	3	4
36	22	This teacher is patient.	is patient	0	1	2	3	4

**Opposition**

*Dissatisfied*

			<i>In this class this teacher</i>					
37	27	This teacher thinks that we cheat.	thinks that we cheat	0	1	2	3	4
38	31	The teacher thinks that we don't know anything.	thinks that we do not know anything	0	1	2	3	4
39	35	This teacher puts us down.	criticises us	0	1	2	3	4
40	39	This teacher thinks that we can't do things well.	thinks that we can't do things well	0	1	2	3	4
41	43	This teacher seems dissatisfied.	seems dissatisfied	0	1	2	3	4
42	47	This teacher is suspicious.	does not trust us	0	1	2	3	4

*Intolerance (Admonishing)*

			<i>In this class this teacher</i>					
43	4	This teacher gets angry unexpectedly.	gets irritated unexpectedly	0	1	2	3	4
44	8	This teacher gets angry quickly.	gets angry quickly	0	1	2	3	4
45	12	This teacher is too quick to correct us when we break a rule.	is too quick to correct us when they break a rule	0	1	2	3	4
46	16	This teacher is impatient.	is not patient	0	1	2	3	4
47	20	It is easy to pick a fight with the teacher.	is argumentative	0	1	2	3	4
48	24	This teacher is sarcastic	makes mocking remarks	0	1	2	3	4

## Appendix C: IQTI version used in Pilot Study

### International Questionnaire on Teacher Interaction (IQTI) v3

Code for type of unit (please circle) CB CIT DB DIT

**Introduction**

The following survey asks for your views on your teachers behaviour.

Think about your current teacher or the teacher from a previous class as you answer this survey.

The survey has 55 statements about your teacher.

For each sentence circle the number corresponding to your response.

If you think your teacher always expresses themselves clearly, circle the 4.

If you think your teacher never expresses themselves clearly, circle 0.

You can also choose the numbers 1, 2 and 3 which are between.

If you want to change your answer cross it out and circle the new number.

**Thank you for taking the time to complete this survey.**

This teacher:

1. (1) Talks enthusiastically about this subject

Never					Always
0	1	2	3	4	

2. (5) Explains things clearly to us

0	1	2	3	4
---	---	---	---	---

3. (9) Holds our attention

0	1	2	3	4
---	---	---	---	---

4. (13) Sees everything that goes on in the classroom

0	1	2	3	4
---	---	---	---	---

5. (21) Acts confidently

0	1	2	3	4
---	---	---	---	---

6. (17) Is a good leader

0	1	2	3	4
---	---	---	---	---

This teacher;

7. (25) Helps us with our work

Never					Always
0	1	2	3	4	

8. (29) Is friendly to us

0	1	2	3	4
---	---	---	---	---

9. (33) Is someone we can depend on

0	1	2	3	4
---	---	---	---	---

10. (37) Has a sense of humour

0	1	2	3	4
---	---	---	---	---

11. (41) Has fun with us

0	1	2	3	4
---	---	---	---	---

12. (45) Is Pleasant to us

0	1	2	3	4
---	---	---	---	---

This teacher;	Never				Always
13. (2) Trusts us	0	1	2	3	4
14. (6) Allows us to talk to them when we do not understand	0	1	2	3	4
15. (10) Is willing to explain things again to us	0	1	2	3	4
16. (14) Listens to us	0	1	2	3	4
17. (18) Realises when we do not understand	0	1	2	3	4
18. (22) Is patient with us	0	1	2	3	4

This teacher;	Never				Always
19. (26) Allows us to decide some things in class	0	1	2	3	4
20. (30) Can be influenced by us	0	1	2	3	4
21. (34) Lets us make choices in class	0	1	2	3	4
22. (38) Lets us get away with a lot	0	1	2	3	4
23. (42) Lets us do what we like	0	1	2	3	4
24. (46) Makes us feel equal	0	1	2	3	4

This teacher;	Never				Always
25. (3) Lacks confidence	0	1	2	3	4
26. (7) Acts hesitantly	0	1	2	3	4
27. (11) Acts as if they do not know what to do	0	1	2	3	4
28. (15) Cannot control us	0	1	2	3	4
29. (19) Does not know what to do when we are disruptive	0	1	2	3	4
30. (23) Is unsure	0	1	2	3	4

This teacher;	31. (27) Thinks that we cheat	Never	Always
		0	4
		1	3
		2	2
		3	1
		4	0
	32. (31) Acts as if we do not know anything	0	4
	33. (35) Looks sad	0	4
	34. (39) Tells us we cannot do things well	0	4
	35. (47) Does not trust us	0	4
	36. (43) Seems dissatisfied	0	4
This teacher;	37. (4) Gets angry unexpectedly	Never	Always
		0	4
		1	3
		2	2
		3	1
		4	0
	38. (8) Gets angry quickly	0	4
	39. (12) Gets annoyed with us	0	4
	40. (20) Forbids us from talking	0	4
	41. (24) Is quick to correct us when we make a mistake	0	4
	42. (16) Is not patient with us	0	4
This teacher;	43. (28) Sets clear rules	Never	Always
		0	4
		1	3
		2	2
		3	1
		4	0
	44. (32) Wants us to be silent	0	4
	45. (36) Controls us	0	4
	46. (40) Makes us work hard	0	4
	47. (48) Makes us afraid	0	4
	48. (44) is strict with us	0	4

	Never					Always
	0	1	2	3	4	
49. I look forward to this class						
50. I feel confused during this class						
51. This class is a waste of time						
52. This class is one of the most interesting at this school						
53. The work is hard in this class						
54. The thought of this class makes me tense						
55. I enjoy this class						

*This survey is now completed.*

*Thank you for taking the time to complete this survey.*

**Appendix D: IQTI final study (pen and paper version)**

International Questionnaire of Teacher Interaction

**International Questionnaire on Teacher Interaction**

**Introductory Questions**

What is your primary language spoken at home?	
What is your country of birth?	
What is your country of citizenship?	
What is your sex?	
What is your current age?	
In which region are you currently studying:	
Which program are you currently studying?	
Which type of subject was your last subject?	
In which semester did you start study at your pathway provider (college)?	

*Please answer these questions in relation to the last subject you attended  
Please place a circle around your response for each question*

<b>This teacher;</b>	<b>Never</b>					<b>Always</b>				
Talks enthusiastically about this subject	0	1	2	3	4	0	1	2	3	4
Explains things clearly to us	0	1	2	3	4	0	1	2	3	4
Holds our attention	0	1	2	3	4	0	1	2	3	4
Sees everything that goes on in the classroom	0	1	2	3	4	0	1	2	3	4
Acts confidently	0	1	2	3	4	0	1	2	3	4
Is a good leader	0	1	2	3	4	0	1	2	3	4

<b>This teacher;</b>	<b>Never</b>					<b>Always</b>				
Helps us with our work	0	1	2	3	4	0	1	2	3	4
Is friendly to us	0	1	2	3	4	0	1	2	3	4
Is someone we can depend on	0	1	2	3	4	0	1	2	3	4
Has a sense of humour	0	1	2	3	4	0	1	2	3	4
Has fun with us	0	1	2	3	4	0	1	2	3	4
Is Pleasant to us	0	1	2	3	4	0	1	2	3	4

<b>This teacher;</b>	<b>Never</b>					<b>Always</b>				
Trusts us	0	1	2	3	4	0	1	2	3	4
Allows us to talk to them when we do not understand	0	1	2	3	4	0	1	2	3	4
Is willing to explain things again to us	0	1	2	3	4	0	1	2	3	4
Listens to us	0	1	2	3	4	0	1	2	3	4
Realises when we do not understand	0	1	2	3	4	0	1	2	3	4
Is patient with us	0	1	2	3	4	0	1	2	3	4

<b>This teacher;</b>	<b>Never</b>					<b>Always</b>				
Allows us to decide some things in class	0	1	2	3	4	0	1	2	3	4
Can be influenced by us	0	1	2	3	4	0	1	2	3	4
Lets us make choices in class	0	1	2	3	4	0	1	2	3	4
Lets us get away with a lot	0	1	2	3	4	0	1	2	3	4
Lets us do what we like	0	1	2	3	4	0	1	2	3	4
Makes us feel equal	0	1	2	3	4	0	1	2	3	4

International Questionnaire of Teacher Interaction

*Please answer these questions in relation to the last subject you attended  
Please place a circle around your response for each question*

<b>This teacher;</b>	<b>Never</b>					<b>Always</b>				
Lacks confidence	0	1	2	3	4	0	1	2	3	4
Acts hesitantly	0	1	2	3	4	0	1	2	3	4
Acts as if they do not know what to do	0	1	2	3	4	0	1	2	3	4
Cannot control us	0	1	2	3	4	0	1	2	3	4
Is not quite sure what to do when we are disruptive	0	1	2	3	4	0	1	2	3	4
Is unsure	0	1	2	3	4	0	1	2	3	4

<b>This teacher;</b>	<b>Never</b>					<b>Always</b>				
Thinks that we cheat	0	1	2	3	4	0	1	2	3	4
Acts as if we do not know anything	0	1	2	3	4	0	1	2	3	4
Looks sad	0	1	2	3	4	0	1	2	3	4
Tells us we cannot do things well	0	1	2	3	4	0	1	2	3	4
Does not trust us	0	1	2	3	4	0	1	2	3	4
Seems dissatisfied	0	1	2	3	4	0	1	2	3	4

<b>This teacher;</b>	<b>Never</b>					<b>Always</b>				
Gets angry unexpectedly	0	1	2	3	4	0	1	2	3	4
Gets angry quickly	0	1	2	3	4	0	1	2	3	4
Gets annoyed with us	0	1	2	3	4	0	1	2	3	4
Is not patient with us	0	1	2	3	4	0	1	2	3	4
Forbids us from talking	0	1	2	3	4	0	1	2	3	4
Makes a fool of us	0	1	2	3	4	0	1	2	3	4

<b>This teacher;</b>	<b>Never</b>					<b>Always</b>				
Sets clear rules	0	1	2	3	4	0	1	2	3	4
Wants us to be silent	0	1	2	3	4	0	1	2	3	4
Controls us	0	1	2	3	4	0	1	2	3	4
Makes us work hard	0	1	2	3	4	0	1	2	3	4
Makes us afraid	0	1	2	3	4	0	1	2	3	4
is strict with us	0	1	2	3	4	0	1	2	3	4

<b>In relation to my last class;</b>	<b>Stongly Disagree</b>					<b>Strongly agree</b>				
I look forward to this class	0	1	2	3	4	0	1	2	3	4
This class is one of the most interesting at this school	0	1	2	3	4	0	1	2	3	4
I enjoy this class	0	1	2	3	4	0	1	2	3	4

<b>In relation to my last class;</b>	<b>Stongly Agree</b>					<b>Strongly Disagree</b>				
I feel confused during this class	4	3	2	1	0	4	3	2	1	0
This class is a waste of time	4	3	2	1	0	4	3	2	1	0
The work is hard in this class	4	3	2	1	0	4	3	2	1	0
The thought of this class makes me tense	4	3	2	1	0	4	3	2	1	0

Thank you for completing the survey

## Appendix E: IQTI final version (online)

# International Questionnaire on Teacher Interaction (IQTI)

*This survey will take 10 - 15 minutes to complete.*

*Please respond to all questions based upon the class you last attended.*

---

## Introductory Questions

★ What is your primary language spoken at home?

★ What is your country of birth?

★ What is your country of citizenship?

★ What is your sex?

★ What is your current age?

★ In which region are you currently studying:

★ Which program are you currently studying?

★ Which type of subject was your last subject?

★ In which semester did you start study at your pathway provider (college)?

## The International Questionnaire on Teacher Interaction

Please respond to all questions based upon the class you last attended.

0 = Never ----- 4 = Always

★ This teacher:

	0	1	2	3	4
Talks enthusiastically about this subject	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explains things clearly to us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Holds our attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sees everything that goes on in the classroom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acts confidently	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is a good leader	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0 = Never ----- 4 = Always

★ This teacher:

	0	1	2	3	4
Helps us with our work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is friendly to us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is someone we can depend on	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has a sense of humour	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has fun with us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is Pleasant to us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0 = Never ----- 4 = Always

★ This teacher

	0	1	2	3	4
Trusts us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Allows us to talk to them when we do not understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is willing to explain things again to us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Listens to us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Realises when we do not understand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is patient with us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

★ This teacher:

	0	1	2	3	4
Allows us to decide some things in class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can be influenced by us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lets us make choices in class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lets us get away with a lot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lets us do what we like	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Makes us feel equal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0 = Never ----- 4 = Always

★ This teacher:

	0	1	2	3	4
Lacks confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acts hesitantly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acts as if they do not know what to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cannot control us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is not quite sure what to do when we are disruptive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is unsure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0 = Never ----- 4 = Always

★ This teacher:

	0	1	2	3	4
Thinks that we cheat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acts as if we do not know anything	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Looks sad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tells us we cannot do things well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Does not trust us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seems dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0 = Never ----- 4 = Always

★ This teacher:

	0	1	2	3	4
Gets angry unexpectedly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gets angry quickly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gets annoyed with us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is not patient with us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Forbids us from talking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Makes a fool of us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

0 = Never ----- 4 = Always

★ This teacher:

	0	1	2	3	4
Sets clear rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wants us to be silent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Controls us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Makes us work hard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Makes us afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Is strict with us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please respond to all questions based upon the class you last attended.

0 = Strongly disagree ——— 4 = Strongly agree

★ In relation to my class:

	0	1	2	3	4
I look forward to this class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This class is one of the most interesting at this school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy this class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Change in Scale

4 = Strongly disagree ——— 0 = Strongly agree

★ In relation to my class:

	4	3	2	1	0
I feel confused during this class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This class is a waste of time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The work is hard in this class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The thought of this class makes me tense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you wish to receive a confirmation email please leave your email address in the box below:

Thank you for completing the survey

*Please click on the submit button below. If you have not responded to any of the questions the survey system will redirect you to back to this page and highlight in red where responses are required.*

*Once you have made your selections click on the submit button below.*

*On successful completion of the survey you will be directed to a confirmation page.*

★ Indicates Response Required

 formsite

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