EMIRATI STUDENT AND EXPATRIATE TEACHER VIEWS ON PROBLEM-BASED LEARNING IN UAE HIGHER EDUCATION COURSES

A Thesis submitted by

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M. Arts

For the award of

Doctor of Education

2017

ABSTRACT

Understanding how Emirati students value Problem-Based Learning (PBL) in their learning of tertiary subjects such as Business and Information Technology (IT) is an essential component of the pedagogy adopted in UAE Higher Education to achieve active learning in those subject areas. This research targeted the 'voice' of Emirati students and their expatriate teachers in the use and subjective evaluation of PBL in their tertiary education experience. Their documented perceptions are available for future UAE education policy development. Currently, there is a lack of understanding of how effectively PBL is being implemented when teaching the subjects of Business and IT. This research took place at a UAE Higher College of Technology where PBL was being used as a part of internal assessments for Business and IT in the students' first bachelor year of study. Data was collected from a purposive sample of 174 Emirati students and 8 teachers using Mixed Methods design - a questionnaire, student and teacher interviews and classroom observations of students participating in PBL group work were the tools used to establish student voice. The questionnaire results indicated that there is a strong consensus from the Emirati students (between 60 to 80%) and expatriate teachers (between 90 to 100%) in support of the PBL pedagogy being used as a form of assessment within their Business and IT classes. However, 40% of the student interviewees were not satisfied with PBL. The eight teachers were strongly satisfied with PBL as a form of assessment for their Business/IT students. The learning of Business/IT content and implementation of group work for projects were considered to engage students and motivate them although projects were considered a challenge in the PBL process. Students generally need better support as do the teachers in implementing new pedagogies which impact group dynamics, learning styles, resources and learning management. assist Emirati students who may be struggling with group dynamics, independent learning, and lack of teacher support and time management. Recommendations are made that for the sustainability of new pedagogies such as PBL, student and teacher voices be incorporated into curriculum decision making in UAE Higher Education taking account cultural and longitudinal implications for the whole education system.

Certification of Thesis

This thesis is entirely the work of *Trevor Ray* except where otherwise acknowledged. The work is original and has not previously been submitted for any other award, except where acknowledged.

Student and supervisors' signatures of endorsement are held at USQ.

Associate Professor Ann Dashwood

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Acknowledgements

Firstly, I would like to express my sincere gratitude to my supervisor Dr Ann Dashwood for the continuous support of my Doctorate study and related research, for her patience, motivation, and immense advice in writing this document. I wish to acknowledge the thesis advice from associate supervisor Professor Jeong-Bae Son. I also wish to thank Roger Barnard, Patricia Strang, Jim Fulton, Andrea Hayes and Jennifer Buckle for their guidance which helped me edit the writing of this thesis. Thanks to Libby Black for editing this thesis. The advice from colleagues from the UAE University (UAEU) have also played an important part in reviewing this thesis. Last but not least, I would like to thank my family: my mother and my children for supporting me throughout the doctoral journey of this thesis.

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CHAPTER 1: INTRODUCTION

1.0 Overview

Problem-Based Learning (PBL) has been selected by a number of universities within the United Arab Emirates as a pedagogy and assessment tool to help improve student knowledge and skill development in subjects such as Business and Information Technology (IT). This chapter begins with setting the scene about a range of factors which impede the progress of Emirati students in post-secondary education and future employment. The influential factors start in secondary school, as outlined in Section 1.1 and how these factors continue to hamper student progress into tertiary education (Section 1.1.2). Section 1.1.3 gives a brief discussion of the employment issues faced by the UAE Federal Government. This is followed by Section 1.2 which gives a short discussion on why PBL was included in UAE tertiary education. Section 1.3 states the focus of the thesis, while Section 1.4 states the reasons why PBL should be implemented in UAE higher education. Some terms and definitions are given in Section 1.5, which is followed by the aims in Section 1.6. The research questions are stated in Section 1.7 and the significance of this research is stated in Section 1.8.

1.1 Background to the UAE education setting

The lack of progress in employment for Emirati students begins in the secondary education system. Lacking a sound background in the English language in secondary school education has set up students for future failure in UAE universities, where most faculties teach in English (Pennington, 2017; Swan, 2012). As noted by Fox (2012); Mouslley (2012); and Ashour, and Fatima (2016), Emirati students in secondary school are not ready to take on the demands of the UAE higher education system. One reason for the lack of student success in UAE higher education is the disparity in quality of learning between private and public institutions. Many Emirati parents perceive that private schools offer more than the government funded public schools even though the private schools charge exorbitant school fees (Knowledge and Human Development Authority, 2014; Pennington, 2017; Townsend, 2017). This has led to the observation from education departments and education officials (Nazzal, 2014; Knowledge and Human Development Authority, 2012; Ahmed, 2017) that those Emirati locals who graduated from private schools are more proficient in English than those from government schools. It is believed that they are more motivated, self-disciplined and have higher achievements in English

as well as in subjects such as mathematics and science that are taught in English (Maamoun, 2013).

The claims are supported further by the local Emirati belief that private education is better than what is offered at public secondary schools including English second language instruction (Nazzal, 2014). The perceived disparity finds publicly educated having to undertake foundation courses when entering university (Nathan, cited in Bollag, 2016). Recent surveys such as the Knowledge and Human Development Authority (KHDA) and CfBT (2011) survey: *In Search of Good Education-Why Emirati parents chose private schools in Dubai* found that more than half of the Emirati students in Dubai city attended their school of choice, based on their parents' belief that private schools offered a better quality of education. From just examining the statistics from the Knowledge and Human Development Authority report (2014) just under 15,000 Emiratis attended private schools and this doubled to 30,000 by 2014.

The Statistical Centre Abu Dhabi (SCAD) (2015, p.14) found that the percentage of Emirati student enrolments in the private sector rose from 31.9 to 34.7%, in the 3 years 2010 to 2014. One reason given was that private schools used internationally-based curricula and the examination results were recognised worldwide, giving students better opportunities to study overseas. Another reason why parents enrolled their children in private education was the perceived better quality of English tuition than in public schools. Government-run public schools have been perceived to lack high levels of quality teaching and learning (Reed, cited in Pennington, 2015). Poor levels of English proficiency among public school graduates has meant those students have needed to undertake foundation language instruction at local universities before starting their preferred bachelor degree program.

1.1.2 Failure to succeed in tertiary education

The lack of academic success of Emirati students in secondary school continues into UAE tertiary education. Many university entrants needed foundational support studies (Moussly, 2012) in English, IT, Arabic studies and mathematics as a result of poor standards of education and insufficient proficiency given that English was the language of instruction in most undergraduate courses (Cullen, cited in Swan, 2015). The students speak Arabic as their first language There were calls by the Common Educational Proficiency Assessment (CEPA) leader

Ryan Gjovig (cited in Moussly, 2012) to resolve the issue of Emirati students struggling to enter and complete their bachelor degrees. An alternative was proposed to teach university courses in Arabic, rather than in English. However, this situation reverted by 2017 in response to government policy. The UAE federal government introduced a policy to phase out foundational programs by 2018 and to introduce the learning of STEM (science, technology, engineering and mathematics) subjects in English during years 10 to 12. The aim is for high school graduates to have sufficient English to enter their desired bachelor program directly (Salem & Swan, 2014). To date there has been an improvement in the number of students who have been able to bypass the foundations entry program because of their higher CEPA scores in the last five years. Jones noted (cited in Swan, 2015) that CEPA scores improved between 2005 and 2015 with a rise to 29% of the student entrants going directly into their chosen programs compared with 20% in 2005. Students aiming for UAE higher education needed to score above 180 points to avoid participating in the remedial foundation courses of Arabic, mathematics, IT and English (Swan, 2015). However, students continued to struggle in university both in the foundation program and in academic faculties because of their low levels of English proficiency. Even though more students are bypassing the foundation support program and entering their bachelor programs sooner, Ashour and Fatima (2016) allege that employers complain that the Emirati graduates they hire are lacking in key competencies in skills necessary for the UAE local workplace.

Another issue which hinders student academic success is insufficient student-centred cognitive skills such as critical thinking, time management and effective group dynamic skills (Chadwick, cited in Swan, 2013). As stated earlier, the secondary school system ill-prepares most Emirati students for entry into universities (Diallo, 2014) because it relies heavily on teacher-directed learning which Ormrod (2015, p. 284) described as: "….an approach to instruction in which the teacher is largely in control of the content and course of the lesson."

Rote learning dominates. Males in particular have become bored and disengaged from their schooling (Marri & Helal, 2011). Content is learnt by memory and students are expected to recall information for internal assessment tasks. By comparison in UAE universities, instructors are using new pedagogies such as PBL to help students learn course content (Burt, 2004; Periya & Sebihi, 2017). Saudelli (2015) following Harold and McNally (2003) found that students have struggled to adjust from teacher-directed classes to the twenty-first century skill-focused

sessions. The UAE higher education system expects students to become independent learners (Bollarg, 2016) rather than learners being dependent on the teacher. One result is that students have tended to drop out of university courses and seek easier educational alternatives such as seeking courses in vocational colleges (McBride, 2013; Daleure, 2017). Dyer (cited in Lewis, 2009, p. 1) described the situation as follows:

> We're seeing a pronounced gap between those who are ready for university education and those who are not being prepared by the primary and secondary levels. Measured against their peers around the world, pupils in the state school system are lagging behind in maths and science and a poor grasp of English delays entry to university for most Emiratis. While the primary language of instruction in state schools is Arabic, federal universities use English. The result is that most school leavers cannot progress directly to university coursework because their English skills are inadequate.

A further complication for Emirati students is that most bachelor degree courses are taught in English, whereas secondary schooling is primarily in Arabic. At university, students are faced with learning subject content in another language for which they have been ill prepared. The result of poor English, poor education skills and learning means that male Emirati students in the tertiary education sector have a high failure rate (MacKin, cited in Olarte, 2011).

By contrast, female students stay at university longer, graduate in higher numbers and outperform their male counterparts in terms of grades (Ridge, 2011; Thomas, 2014). Female students find that tertiary education is an escape from cultural constraints and Pennington (2012) considers that such a belief has resulted in females graduating in higher numbers. One explanation provided by Ridge (2011) was that female Emirati students were taught solely by female Emirati teachers whose influence encouraged them to stay at school longer and complete their secondary education.

The situation for male Emirati students is different. They gain lower grades on many of the standardised tests in STEM subjects and leave secondary school at a rate of 20% per year (KHDA, 2013). The Emirates Centre for Strategic Studies and Research (ECSSR) report undertaken by researchers Marri and Helal (2011) found that a quarter of Emirati men aged

between 20 and 24 were high school dropouts, who never returned to education. The high male student dropout rate was still being reported as an issue in 2014 (Swan, 2014). Cultural traditions identify the male as the family provider who is motivated to enter the workforce quickly to earn a salary. Judd (2013) noted that males, particularly the eldest son, use their salary to provide, not just for the immediate family, but for the extended family. Therefore, it is difficult to interest Emirati males in another four years of education because of their desire to earn a salary on completion of secondary school, and the pressure placed upon them by family members to do so. Up to 60% of secondary school males enter employment and do not then continue on to higher education. The largest public employers - notably the army or military more broadly - are the most popular as these recruiters require minimal education levels from applicants. It is from this situation, as put forward by the Emirates Centre for Strategic Studies and Research (ECSSR) researchers, Marri and Helal, (2011), that the ease of gaining employment in these two markets has reduced the incentive for many males to pursue higher education. Male Emirati students view enrolling in higher education for another four years as a waste of time, according to studies by Ridge (cited in Chaudhary, 2013) and KHDA (2011) who previously had found that males sought employment to achieve social and economic fulfilment while higher education did not advance their personal futures according Tomahadi (cited in Ahmed, 2011). What has been voiced by education observers of the UAE education system such as Fox (2012), Al Marri and Helal (cited in Ahmed, 2011) and Wilkins (2010) is concern that many Emirati males leave secondary school early, thus endangering their future employment opportunities. Reasons for male students opting out of secondary or higher education earlier than females vary.

1.1.3 Employment issues faced by the UAE Federal Government

The employment situation for Emirati graduates has been described by the Statistics Centre Abu Dhabi (SAAD) (2014) as a situation which is changing for the worse. The department found that unemployment for Emirati youth jumped from 6.4% in 2011 to 8% by 2014. The unemployment rate is worst for Emirati females, where it rose from 15.6% in 2005 to 18% in 2012 (Abu Dhabi Statistics, 2015). For males, the unemployment rate is lower. It fell from 7.3 in 2011 to 5.5 in 2013 (Abu Dhabi Statistics, 2015) which could be due to the introduction of the compulsory military service for Emirati males in 2013. The unemployment situation for Emirati females is worse because local Islamic culture restricts their movements

compared with males who have greater mobility and freedom to seek work. Such rules impede the options for females who are often prevented from moving alone to another city or emigrating in search of employment (Saudelli, 2016). In addition, the global financial crisis which began in 2008 has saturated the employment market in the public sector. However, Emiratis are hesitant to work in the private sector because of lower levels of pay and benefits compared with the public sector (Nouri, 2015).

The UAE Federal government, as an employer is faced with trying to graduate students who are under-skilled (Pennington, 2015). One consequence of having graduates who are under-skilled is that local public and private sector employers do not wish to employ them. These employers are seeking students who are well skilled, knowledgeable in their subject area, independent and who are critical thinkers. By contrast, they found that students were de-motivated, under-skilled and who lacked a strong work ethic (Al-Waqfi & Forstenlechner, 2010; Jones, 2011; Pennington, 2015). These students struggle to compete for employment with imported foreign workers who are skilled in areas such as Business and IT. Employment experts commented in Pennington (2015) that throughout the GCC region there was a growing gap between the job demands of the workforce and the poor skills of Emirati students. Bahsoun (cited in Pennington, 2015, p. 1) claimed: “This regional skills gap is partly due to the challenges in aligning local educational and training systems to the increasingly complex demands of organisations."

Another issue the Federal government has to face is the local Emirati population preferring to work within the public sector and choosing not to work in the private sector (Swan, 2013). The public sector offers better pay, shorter working hours and benefits when compared to the private sector. This has led male Emirati students to bypass tertiary education for better employment opportunities in the local army and police force (Hatherley-Green, 2014). Female students seek employment in public, government-run businesses such as the local telecom, Etisalat and local banks (Benchiba-Savenius, Mogielnicki, Owens & Scott-Jackson, 2016; Shaheen, 2009). The employment opportunities for female graduates are much worse than for male Emirati students. Male students were more mobile and therefore could seek out more employment opportunities than the female students who were restricted by family and cultural rules (Almazroui, 2012; Saudelli 2016).

This is the preferred choice for female students, because there is no need to travel far to these places of employment, if they are close to the family home and do not require moving to other Emirates or cities. Since 2009 there have been limited employment opportunities in the public sector, forcing many graduates to begrudgingly seek employment in the private sector (Nouri, 2015). For example, to improve employment opportunities for university students, the Federal government has created the Absher Initiative, which works closely with UAE universities. Invited guest speakers from private companies work closely with universities students, where they highlight employment opportunities and benefits when working in the private sector (Sabry, 2013). To help local Emirati student graduates, the Federal government embarked on a local employment scheme called Emiratisation, which was established in 2013 (Zaman, 2012). This is where private companies were required to employ a ratio of Emirati employees alongside the imported foreign workers (Duncan, 2016).

The UAE Federal government is working hard to ensure employment opportunities for their local population because they want to ensure national stability and strong economic growth. This has meant that the nation's leaders have embarked on ambitious strategies aimed at diversifying the employment opportunities and reducing dependence on the petroleum industry (Haider, 2016). This has meant that there has had to be a rethink in how education is being taught in the UAE universities. Therefore, to ensure better quality of graduates, pedagogies such as PBL are being used in UAE universities to improve levels of student training through student-centred learning approaches (Tabari, 2014). The government recognises their graduates need to be equipped to meet the demands of future employers and to be ready to work in a global workforce with the necessary skills such as self-responsibility and teamwork. Therefore, with the use of such pedagogies, the current gap between the education system and employment expectations can be bridged. The UAE National Strategy Vision of 2021 (2010) states that its aim is to develop UAE citizens who will be well educated and will contribute to the success of the nation.

Therefore, the current education system needs to adapt quickly to overcome the mismatch between education and the world of work, and PBL has been adopted as one solution to help overcome this issue. However, there is no current research that helps evaluate how successfully PBL is being implemented in tertiary education and how PBL will help prepare students

effectively for the workforce. The mismatch exists because many current and future jobs, as indicated by Omani (cited in Pennington, 2015); require skills such as communication and interpersonal abilities, teamwork, motivation, flexibility and pre-graduate work experience. The problem is that current tertiary education models are not preparing tertiary education students in these skills. If the education system was currently doing this, then employment experts would say that there was an equal match with both the education and employment sectors.

1.2 Defining PBL and its inclusion in UAE Tertiary Education

PBL was introduced firstly in medical institutions such as the McMaster University in Canada by Professor Barrows (1985) for the purpose of training medical students on practical projects to help them understand connections with real medical practice and theoretical knowledge. From there, many educational institutions ranging from primary education (Torp & Sage, 2002) through to subjects of engineering (de los Ríos, Cazorla, Díaz-Puente & Yagie, 2010) and medicine (Bo Qin, Zhou, Mou & Gao, 2014) use PBL as a form of educational practice to help students learn and develop their creativity and develop skills in reasoning and critical thinking (Park, 2001). Park (2001) identified learning objectives that include a range of 'soft skills' such as communication skills, and knowledge content skills.

Problem Based Learning (PBL) is described by the Buck Institute for Education (2016) as a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging and complex question, problem, or challenge. Earlier, Burrows and Tamblyn (1980, p.1) described PBL as, "…learning that results from the process of working towards the understanding or resolution of a problem."

What is noted by Education World (2012) is that there are particular elements associated with the PBL method. Firstly, students are at the centre of the learning. They are involved in critical thinking and problem solving, team development and self-management. Projects are the key part in the PBL method of learning. . The project, in whatever form the students desire to undertake it, is focused around a meaningful issue or problem. Another part of the method is that the students are asked to demonstrate their knowledge and find a solution through inquiry. The project problem centres around a real-world context and this is used to stimulate the students and their interest into the inquiry to solve the problem. For example, teachers present realia or students

visit a location where the problem is presented insitu. Student voice is another important element. Students have to explain what they have investigated and created. Reflection is another essential part of the process, where students are asked to think over issues such as how they resolved issues and give feedback to the teacher on what they learnt. Further, students are given feedback by their peers or the teacher.

PBL derives from theories of learning established by Dewey (1916) who believed that learning should be natural with hands-on activities. He stated:

> Methods which are permanently successful in formal education . . . go back to the type of situation which causes reflection out of school in ordinary life. They give pupils something to do, not something to learn; and the doing is of such a nature as to demand thinking, or the intentional noting of connections; learning naturally results (Dewey, 1916, p. 154).

PBL makes strong connections through the theory of social constructivism. As Vygotsky (1973) observed learning occurs through acculturation in real world situations. Also, learning occurs between students and by teacher interaction and collaboration. Students learn from others who are more knowledgeable such that the Zone of Proximal Development (ZPD) is enhanced. The result is that the student becomes more independent and therefore does not need the same level of assistance as given previously (Chen, Feng & Chiou, 2009).

Student-centred approaches such as PBL are recent additions within the UAE education system, with the aim of helping Emirati students to gain deeper learning**.** Emirati society realises that its education system needs improvement so that students are prepared to become global citizens and contribute to the national development of the country (Ministry of Education, 2015). The country is seeking an education which has learning outcomes that not only include literacy and numeracy but outcomes which help students develop skills in problem-solving, collaboration, and creativity (UAE Ministry of Education, 2015). ADEC in 2017 has undertaken a revision of their education model for secondary school, where they are changing from a teacher-directed approach to a more student directed learning approach (Al Hosani, cited in Pennington, 2017). The

goals for this revision of education policy are to have students who are prepared for lifelong learning, and knowledgeable in core STEM subjects. Emirati secondary school students will thereby enter university without the need for foundation studies (Pennington, 2017). The government hopes these new graduates will contribute to developing the country's economy away from a reliance on oil (Pennington, 2017).

Recently, an overhaul of the education policy in the UAE was encapsulated in a government initiative labeled the "Education 2020" program (Alshami, 2010, p. 3). The report found that Emiratis lacked the basic skills of English fluency, suitable work skills and the higher order skills needed for both the public and private employment sectors of industry. PBL has been introduced into the tertiary education sector, yet the impact is not well documented in the literature (Savery, 2014). What has been found in recent research are the following examples - tertiary education institutions such as HCT have incorporated PBL within their courses to help Emirati students develop skills such as monitoring their own learning and overcoming their learning struggles (Bielenberg & Gillway, 2007; Diallo, 2014) in English. Other institutions, such as the UAE University (UAEU), have incorporated PBL in their foundation program to introduce their students to the concepts of PBL and to give them a start in experiencing and progressing with this pedagogy (Boukhobza & Hajjaj, 2014; Sharma, Hussain, Ahmed& Na, 2010). Other departments of the UAEU, such as the Faculty of Medicine and Health Sciences (FMHS), have successfully adopted PBL. The College of Technological Innovation within Zayed University has successfully introduced PBL as a pedagogy to meet aims and objectives, such as to ensure that "students will be able to use critical thinking and quantitative processes to identify, analyse, and solve problems and evaluate solutions in an IT context" (Beachboard & Beachboard, 2014, p. 55). What is meant by pedagogy for this thesis is the "interactions between teachers, students and the learning environment and the learning tasks." (Murphy, 2009. p 35).

A reason for incorporating student-centred approaches such as PBL within UAE tertiary education is for graduates to be better prepared for the UAE workforce (Yahyaei, cited in Pennington, 2016). This will help meet Federal government aims of Emiratisation by generating graduates who are skilled and knowledgeable in their field of expertise. Emirati students are competing for employment with overseas expatriates from countries such as India whose graduates are better qualified, better trained and cheaper to hire. PBL is regarded as one of many

pedagogies; alongside Project Based Learning, Challenged Based Learning and Active Base Learning (Heick, 2013). Pedagogy has been defined as: the art, science, or profession of teaching (Merriam-Webster Dictionary, 2016) and the International Institute for Educational Planning (2016) describe pedagogies as: "Learner-Centered Pedagogy: This pedagogical approach has many associated terms (e.g., constructivist, student-centered, participatory, active), but generally draws on learning theories suggesting learners should play an active role in the learning process. Students therefore use prior knowledge and new experiences to create knowledge. The teacher facilitates this process, but also creates and structures the conditions for learning."

1.3 Focus of the thesis

Problem-Based Learning (PBL) is a pedagogy that uses a teaching/learning approach to engage students with their learning experiences. PBL is practised in several disciplines of education and at many levels from secondary education through to university (Hirca, 2011; Hmelo-Silver, 2004). This thesis investigates the Emirati student and expatriate teacher perceptions of the effectiveness of PBL in Business and Information Technology (IT) studies of a United Arab Emirates (UAE) tertiary education situation where PBL is a recent addition to the education sector, in reference to one campus of Higher Colleges of Technology (HCT).

The extent to which PBL is used in UAE tertiary education is relatively unknown. It is included in selected English based courses in accordance with the preference of UAE tertiary education course planners. Students and teachers had not been consulted about the implementation of PBL in the institution where this investigation took place but were required to engage in the pedagogy to comply with the demands and goals of course planners and university administrators. Feedback from Emirati students about their responses to the implementation of PBL will be beneficial for course planners and university administrators to inform them about what is impeding the implementation of PBL in UAE tertiary education. Educational standards started to feel pressure with the rising costs of education, increased enrolment and the low price of oil exports, a group of factors that together have put pressures on the intertwined relationship between enrolment growth, funding and quality of education. The Organisation for Economic Co-operation and Development (OECD) (2015) has warned that Emirati students are under skilled and under qualified and therefore this will impact the countries future economy (Al Nahayan, 2007).

This research incorporates student and teacher voices as valued components when evaluating the pedagogy. Knowledge gained can inform course planners on how PBL is being received in Business and IT courses and how suggestions for strategies to improve student satisfaction in their engagement in this pedagogy. It must be noted that participants are learning about Business and IT through the medium of English, so this environment would be best described as Content Based Learning courses.

1.4 The Problem

There is insufficient evidence of student and teacher evaluations of PBL in local tertiary education. It is important, therefore, to gain a greater understanding of how this pedagogy is being received in local university education to identify whether it is meeting the goals of university course planners (Omani, cited in Pennington, 2015). PBL is often mentioned by HCT in their course descriptions; but as yet, there have not been any studies which have asked the students their opinions of the use of PBL (Higher Colleges of Technology, 2016). The views of Emirati students and their teachers are sought by the UAE Ministry of Education in order to provide some insight into the skills developed, such as: communication and interpersonal skills, teamwork, motivation and leadership skills, critical thinking, and problem-solving (Absai, 2011). The problem is that there are limited records of Emirati students voicing their views on PBL pedagogy, particularly within UAE tertiary education.

By canvassing student views and exploring their refections, an understanding can be achieved of what stimulates their enjoyment and by contrast what causes dissatisfaction with the pedagogy. PBL is used as the main learning approach in Business or IT classes. The students in the sector may have limited experience with the pedagogy, as Rapanta (2014) and Al Merri, (cited in Salami, 2013) noted where they claimed that Emiratis often lack prior knowledge and experience because of the mass production nature of the secondary school system. This means that many do not understand what is expected of them in the PBL process. Students struggle in UAE universities where this pedagogy is common. The problem is compounded further that students taught mainly in Arabic during secondary school face having to undertake tertiary education courses in PBL conducted in English but they are not given effective orientation in how to operate within this pedagogy (Daleure, Albon, Hinkston, Ajaif & McKeown, 2013; Salami, 2013).

1.5 Terms/ Acronyms

The following terms and acronyms are used in this paper are as follows:

Voice: the values, opinions, beliefs, perspectives, and cultural backgrounds of individual students and groups of students in a school, and to instructional approaches and techniques that are based on student choices, interests, passions, and ambitions (Hidden Curriculum, 2014).

Perceptions, views, opinions: a belief based on experience and on seeing certain facts (Merriam Webster Dictionary, 2016)

CBL: Content Based Learning
CST: Culturally Sensitive Teaching
IELTS: International English Language Testing System
ESL: English as a Second Language
HCT: Higher Colleges of Technology
IT: Information Technology
PBL: Problem-based learning

1.6 Aims of the thesis

This thesis proposes that consideration of student and teacher attitudes are two of many factors affecting learning and teaching to be taken into account in future tertiary education decision-making. To create an understanding of the use of PBL in UAE tertiary education and its impact on Emirati students, the researcher undertook a PBL field investigation in 2012 within one local UAE tertiary education college. Teachers were required to follow a constructivist-based curriculum taught within a Content Based Learning (CBL) environment. The institution often reviewed and adjusted the faculty teaching approaches to meet the expectations of the Education Ministry and employers based in the Business and IT workforce. This adjustment was announced in 2009 at the annual HCT conference, by the then HCT Chancellor, Mohammad Omran Al Shamsi (Higher College of Technology News, 2009). As new skills and teaching techniques became available in the 2000s, the institution moved towards providing students with a "technologically sophisticated educational environment that encouraged development of the

independent and lifelong learning skills" (Higher Colleges of Technology, 2015, p. 2). PBL was incorporated in courses to equip students with the basic research and training which would support them through their bachelor program. Business and IT were chosen to incorporate PBL so that students could understand the demands and requirements in the workforce, outside the technical college.

Courses are often evaluated annually or quarterly by students through online or paper evaluations of their satisfaction with the course or teacher delivery (Higher Colleges of Technology, 2016). Another way to evaluate a course or pedagogy is by defining the student and teacher perspectives, by means of expressing the "student voice" and "teacher voice." If data can be accumulated, then a greater understanding will be created on the extent to which PBL is equipping students for future employment demands by producing students who are flexible, adaptable, time managers and self-managers.

Bielenberg and Gillway (2007) found that PBL is not suitable for all subjects, and therefore its use in Business and IT courses needs to be evaluated to ensure that students are enjoying their experiences can understand what to do in PBL and are gaining essential learning skills. There are benefits as well as constraints to having PBL in a course. In summary, this research aims to add to the body of knowledge to provide an understanding of how Emirati students and expatriate teachers' voices are heard in giving their understanding of PBL within the UAE tertiary education sector.

One aim is to identify effects of students' attitudes with towards the new curriculum of Problem-based learning (PBL) in their engagement in learning in a higher institution in the UAE. The results can inform course and program planners about the incorporation of PBL in Business and IT courses. A second aim is to understand what issues expatriate teachers and Emirati students identify in PBL pedagogy that affect the ability of students to function well and enjoy the pedagogy. Some of the students were experiencing the pedagogy for the first time in English language medium. Their responses were likely to reflect aspects of the pedagogy which either enhanced or inhibited their learning. Their responses will help inform teachers, course administration and course planners within Business and IT tertiary education courses as to what

are the Emirati expectations and values which directly influence student performance, engagement and persistence with the PBL pedagogy. With analysis of information from this study, teachers will come to understand factors that either enhance or limit motivation, engagement and persistence with PBL. Schoepp and Danaher (2016) identified weaknesses in how PBL is being implemented within the UAE tertiary education courses, their skills for lifelong learning.

The findings will contribute to UAE society in these contemporary times by exposing the role of PBL in Business and IT tertiary education courses and student response to PBL.
. The great demand for graduates with Business and IT background justifies the need for more effective life changing teaching approaches using PBL. Thus, schools that supply PBL based courses or assessments will be able to provide better delivery of PBL to UAE tertiary education students. Course administrators will be guided in what should be emphasised by teachers when they implement the PBL based school curriculum to improve students' performance in Business and IT. For researchers, the findings will help uncover critical areas in the evaluation process of PBL that many researchers have not been able to explore previously. Therefore, a new approach to evaluating pedagogy within PBL with the UAE education has been utilised.

1.7 Research questions

As a researcher, I was interested in student impressions of PBL. I had a range of short and long term PBL projects and felt that by conducting an objective study of the views of Emirati students, clearer understandings could be qualified as a record of the happenings during PB. This thesis in a way is a journey for me. also "Emirati students and their expatriate teachers consider PBL to be problematic but at times rewarding for students learning the Business and IT course content". From this hypothesis, the following research questions were formulated.

RQ1. What attitudes do Emirati Business and IT students have towards PBL?

RQ2. How do Business and IT expatriate teachers view their students' attitudes towards PBL?

RQ3. What are the levels of engagement of male and female Emirati students with their PBL projects?

From these questions, the student and teacher "voice" can be elicited. The Hidden Curriculum (2013, p.1) proposed the 'voice' concept as, "…the values, opinions, beliefs, perspectives, and cultural backgrounds of individual students and groups of students in a school, and to instructional approaches and techniques that are based on student choices, interests, passions, and ambitions".

1.8 Significance of this research

The importance of having PBL included in UAE tertiary education has been highlighted by many concerned interest groups. The Federal government desires to have graduates ready for the global workforce; employers seek students who are creative, communicative and responsible; universities desire to have graduates who can meet the demands of employers and the expectations of the Federal government to meet employment objectives. The aim is to engage Middle East students in creating, questioning, and revising knowledge, while developing skills in critical thinking, collaboration, communication, reasoning, synthesis, and resilience (Bielenberg & Gillway, 2007).

It is important to understand how Emirati students are responding to PBL, particularly with respect to the subjects of Business and IT. What is known is that Emirati students participate willingly in the traditional teacher-directed rote learning secondary school system, but it is unknown whether they are willing to learn through a new pedagogy that is foreign to them at HCT (Beachboard & Beachboard, 2014).

To date, little research has been undertaken to identify benefits for Emirati students and their expatriate teachers using PBL. By identifying those factors, this study has informed how well the PBL projects are being implemented and received by higher education Emirati students in Business and IT courses. Through educational reform within the UAE, it is necessary to examine the current status of PBL pedagogies from Emirati student and expatriate teacher perspectives.

Consequently, by using the students and teachers' points of view as one of many types of course evaluation systems, PBL can be evaluated effectively. Since many courses have an existing evaluation and feedback system, it is important to collect student feedback and analyse satisfaction with PBL, so that any issues can be rectified by course planners. P. 26 (Section 1.8). An understanding of Emirati students' attitudes towards PBL may provide evidence of the anxiety experienced when students participate in student-centred PBL pedagogies, thereby contributing to how anxiety and frustration can be minimised (Toshalis & Nakkula, 2012).

1.9 Summary

Chapter 1 has outlined the complexity of issues involved in introducing problem-based pedagogy to the UAE Higher Colleges of Technology. PBL is a pedagogy which is used within UAE tertiary education. One way to evaluate its success is through the eyes of those students who are being taught using it. Section 1.1 presented the background to the education, and employment situation currently experienced by UAE university graduates and by the UAE Federal government. Section 1.2 gave a short discussion on why PBL was included in UAE tertiary education. The focus was presented in Section 1.3 and the problem in why Emirati students need to voice their happiness and frustration about the implementation of PBL within UAE tertiary education was stated in Section 1.4. Terms and definitions used within this thesis were given in Section 1.5, followed by the aims in Section 1.6. The research questions were stated in Section 1.7 and the significance of the research was raised in Section 1.8.

Chapter 2 follows with the concept map and literature review, which establishes the theoretical foundations for this research. The methodology is presented in Chapter 3, with a focus on presenting justification for a mixed method approach and the sampling for this thesis. Chapter 4 presents the results gathered from a questionnaire, interviews and class observations. Student and teacher views on the effectiveness and the challenges of PBL pedagogy are discussed in Chapter 5. Implications are suggested in Chapter 6. Limitations and conclusion are presented in Chapter 7.

CHAPTER 2. LITERATURE REVIEW

2.0 Overview

Student and teacher evaluation of the pedagogy they are engaged in, and its effects on learning, are integral to University Departments, who often use quantitative student evaluations of teaching courses to gain an understanding of how effective pedagogies are (Keshk, Qalawa& El-Azim, 2016). Research has also used student and teacher voice as a means of gaining a quantitative understanding of PBL, a pedagogy which was less common in the UAE, at the time of this study. Rote learning was the main educational pedagogy (Tabari, 2014). Student or teacher voice is described by McLaren (2007) as using these groups' own perspectives to gain an understanding of the issue being evaluated when referring to: "..the cultural grammar and background knowledge that individuals use to interpret and articulate experience." (McLaren, 2007, p.1).

Educators mainly use end-of-year or end-of-term student course evaluations to understand how the course has been accepted by students. However, by directly asking students face-to-face in an interview what they thought about a course or the pedagogy underpinning it; their responses can be elaborated and clarified. The use of student voice to evaluate a course or a model of pedagogy has been documented by Palmer (2013) and Habok and Nagy (2016). Their studies suggest that using student opinion to evaluate PBL can reveal insights into what they are receiving from the pedagogy. Student voice can be collected from a range of resources including questionnaires, interviews or through observations (Palmer, 2013, p. 1), and from it, course planners can hear what students have to say about *how* they learn and *what* they are learning. Student evaluations of pedagogy allow student participation in the decision-making process of education reform. Consequently, research is needed to explore and report on student evaluations of PBL being used in Business and IT Higher Colleges of Technology (HCT) courses, and recommendations can be made for the implementation of PBL in the broader UAE educational context.

This chapter consists of four main sections: firstly, Section 2.1 (Student) and Section 2.2 (Teacher) presents past research on student and teacher voices on PBL, which provides the

foundation for the first and second research questions. Secondly, Section 2.3 explains the theory of engagement which provides the basis for the third research question. Thirdly, Section 2.4 describes the theories which support the conceptual framework for this thesis. Section 2.5 concludes the chapter.

2.1 Past research on student and teacher voices on PBL

One way to evaluate the effectiveness and challenges of a pedagogy is through the voices of the student and teacher. The following discussion focuses on firstly how overseas and local UAE student opinion studies have evaluated PBL pedagogy. The section begins with presenting what research has discovered in terms of what aspects of PBL students appreciate about PBL and this is followed by the challenges they struggle with when participating in PBL After this, the teacher viewpoint on how they see their students relate to the PBL pedagogy is then discussed.

Students were happier with the PBL process than the teacher-directed pedagogy (Heywood, 2005). Generally, they found it more stimulating as Alrahlah, (2016) found in his study. From his literature review of PBL used in Dentistry higher education, the literature points towards the fact that the students' PBL is often used in teaching higher order thinking subjects, such as medicine, because it gives practical experience in medical field knowledge that cannot be taught completely and effectively in a teacher-directed approach. Khoshnevisas, Sadeghzadeh, Mazloomzadeh, Feshareki and Ahmadiafshar (2014) investigated medical students' opinions of PBL at an Iranian university. The researchers undertook to compare and contrast both PBL and teacher-directed methods, using two groups of medical students, where each group was taught for six months. What the students reported was they preferred learning through PBL because it was more motivating, the learning quality was better, and what they were learning had practical use in the medical field. What is revealed is that these medical students clearly identified that they felt they were learning better, which created greater satisfaction. What is unknown is whether the same situation exists for Emirati students, in that it is unknown whether they find PBL more satisfying than teacher-directed learning in UAE tertiary education contexts.
Al Rasbi (2014) found that a sample of 224 female students believed that using co-operative learning techniques such as PBL improved the learning process for them. These students came from a range of courses such as foundations, education and engineering. Another finding was

that most of the participants preferred to use group projects in their learning process. Students felt that traditional teaching methods limited learning opportunities as well as make learning more difficult. The students felt that peer and group work in PBL gave them better opportunities to share and support each other in contrast to their previous experience with teacher-directed learning. Previously in the teacher directed learning approach, the students felt bored and disinterested in listening to the lecturer.

Bentley and Warwick (2013) established that Business first-year and postgraduate students felt satisfied working in PBL-based groups. Using a pre-and post questionnaire, the researchers questioned UK-based undergraduate and graduate students about their impressions of doing PBL group work. Students responded that they found PBL group work rewarding and beneficial. The students found working in groups motivating, and they found the PBL process easier to undertake when in groups. Other benefits the students reported when doing PBL group work included improvement in teamwork and communication skills, a sharing of the workload, and better learning. It would be informative to identify comparative results in an Emirati higher education setting.

In one of the very few studies in this area, Boukhobza and Haijjaj (2014) studied a group of 50 female Emirati students in a Business management course, where they undertook two tests before and after a PBL-based leadership course. The students reported satisfaction with the PBL process, because they enjoyed learning about leadership through the PBL group work. To further support their findings, Boukhobza and Haijjaj used a mixed approach of class observations and a questionnaire, where it was found that PBL helped students to be highly engaged in group conversations and have a stronger focus on their projects. What the research did not provide was a background to the influences of language, varied group skills, and attitudes to learning in PBL group work. Mohammed and Zaid (2014) found teamwork was considered by Emirati students to be a rewarding and positive activity. Undertaking research at the Petroleum Institute, female engineering students participated in a teamwork experiment and it was found that students were positive when allowed to choose their own team members. More freedom of choice allowed better team satisfaction and effectiveness. While the findings were very specific, the research did not establish what would occur for male students in the same situation. Another issue that the

research did not identify was the effect of group work on Emirati students' ability to overcome group dysfunction.

The research by Dendane (2007) found that Emirati university mathematic students responded well to doing group work. From his observations, he found that the students' confidence and self-esteem seemed to improve over time. The students indicated they found group work satisfying, particularly in areas such as listening to their peer's opinions, communicating in groups and clarifying. Dendane found that the students' attitudes to group work changed to being one that could be characterised as being more positive about working in groups over the time of the research. The research took place over one semester. He saw the students' positive reactions to group work expressed in a range of positive behaviours such as students helping each other, being able to organise themselves, and solving the mathematic problems in a group setting and not as individuals.

From the questionnaire, 192 students felt satisfied with learning mathematics through PBL, particularly with learning to work in groups. The students felt they learned better through groups than on their own and also felt their confidence in mathematics improved because of group work. In confirmation of other reasons students appreciate group work within PBL pedagogy (Saudelli, 2016), it was found that Emirati female students rated PBL group work highly because they used it as a social outlet for being with friends and building on relationships. One explanation given by Saudelli (2016) of why Emirati female students participated well in group work was that through it they gained a sense of female empowerment. Those female students used group work to develop skills for their current situation as students, as well as to support their future family lives. While female empowerment is an important aspect to identify, the findings did not bring forward how females who are studying in Business and IT feel about group work. Saudelli's research focused on the impact of the nuances of culture and religion in tertiary education classrooms, applied to a range of subjects. What is needed is specific information to see how Emirati students are responding to PBL group work in the subjects of Business and IT specifically.

PBL pedagogy has been rated highly by students because it improved their attitudes to learning. Gok and Silay (2008) investigated Turkish secondary school physics students through a contrast of a PBL-taught class and a teacher-directed control group. Student attitudes were found to be significantly more positive when Physics was taught through a PBL approach. The researchers attributed an improvement in the PBL students' attitudes to the use of problem-solving strategies and the use of teamwork. The teacher-directed control group had poorer attitudes towards learning physics because of the lecture method used and there was no group support made available for learning. Since these Turkish students had positive attitudes to learning because of PBL in secondary school, it would be interesting to discover whether the same positive attitude exists with students who experience PBL in Tertiary education courses in a more Middle Eastern context such as in the UAE. Hamdan, Kwan, Khan, Ghafar and Sihes (2014) undertook a pre- and post-questionnaire of 94 Malaysian medical students who participated in an 18-week experimental trial of learning a medical course through PBL. Those students improved their attitudes towards the course, which was attributed to the effectiveness of the PBL pedagogy. By putting their nursing knowledge into real-world practice, they saw connections in what they were learning about patient care and its importance in the everyday hospital environment. By identifying the transition from theory into practice, they were able to improve their attitude to learning medical knowledge. The students were motivated to learn. When students are stimulated and motivated by hands-on learning as done through PBL, there will be positive consequences in terms of improved attitude.

What is needed for the Emirati context is evidence of Emirati students' changed attitudes to learning through PBL and the real-world Business/IT issues in practice. If it can be found that PBL improves Emirati students' attitudes to learning, then it can be shown that this pedagogy contributes in the UAE tertiary education context. Locally, in the UAE, Alajmi (2014) evaluated students in a PBL-based dentistry course and found that younger tertiary Emirati students (16–20-year-old group) perceived PBL more positively than students in their second or third year. He concluded that the first year of study had a possible inhibiting influence on the students' views on PBL-based learning and tutorials. He recommended that a hybrid PBL approach could be appropriate in teaching dentistry-based courses, particularly for older students. He found that students in their second or third year were tired of undertaking PBL projects because they

realised the extra amount of effort required to complete the PBL assessment. Alajmi's research took place in a medical knowledge-based course, yet for students who study Business and IT, the impact is less well known.

Research has established that students report positive attitudes to PBL because they feel the quality of learning is better through this pedagogy than teacher-directed approach to pedagogy. Turkish teacher training students from Selcuk's (2010) research reported that the quality of learning was better through PBL than when taught through teacher-directed pedagogy. Selcuk (2010) investigated two groups of students, where one group was taught physics teacher training through PBL and another group was taught through a traditional teacher-directed approach. Data gathered from test scores and an attitude survey showed that the PBL group rated their learning quality as deeper. The students also reported they had a stronger interest in the physics course. The research felt it could not prove for certain whether PBL improved students' attitude to learning and their achievement success in physics, but argued that the difference in pedagogy may have caused a change in attitudes. For differing nationalities of students such as Emirati students, it needs to be found whether they have an improvement in their attitude to learning through feeling the quality of learning is better through PBL. Selcuk's study established that students recognised their learning of physics was greater through the PBL approach and their attitude improved. The results also showed that students studying physics through a teacher-directed approach were bored and unexcited. Khoshnevisas et al. (2014) found that Iranian university paediatric students in a PBL experimental group versus a control lecture-based (LB) group perceived their learning as better, and the test results showed a higher result than the control lecture-based group. The students preferred PBL because they felt more motivated in the practicality of the pedagogy and quality of learning. It is unknown what the quality of learning is like for Emirati through PBL. Erdemir (2009) investigated how differently 270 Turkish physics students reacted depending on whether they had been placed in either the PBL experimental group or in the teacher-directed control group. The students from the PBL experimental group reported they felt their quality of learning was better through PBL, which in turn improved their attitude in learning and their affinity with physics. It is unknown if Business and IT HCT students within UAE tertiary education also feel PBL improves their quality of learning.

The level of the quality of learning Emirati students gain when learning Business and IT through the medium of English may affect their satisfaction with PBL. Pathare (2011) explained that Emirati students suffer from an elementary level of English when entering tertiary education institutions with fluency errors in their use of the English language. For example, even though speaking is the greatest strength of the students, it still contains fossilised errors. The output production is limited to a specific zone of content; in writing, English words are misread and misspelt because of the difference of language writing direction between Arabic and English (Pathare, 2011). Arabic is read and written right to left, as is the Chinese Mandarin script, while English is read and written left to right. If students suffer with learning subjects in English, through PBL, it is anticipated that students will question the quality of learning they gain through PBL. Erdemir (2009) established that students' attitudes to recognising this quality of learning through PBL was due to them refocussing and adjusting their attitudes. These factors may exist or may not exist for Emirati students. Within the UAE, a recent study by Al Rasbi (2014) on Emirati students reported positive appreciation of PBL, because students believed it helped them develop learning in a range of tertiary courses. From a sample of 224 students, and using a questionnaire and interview approach, Al Rasbi found Emirati students liked PBL because the cooperation-based techniques improved their learning. Al Rasbi's study focused on understanding Emirati students in dentistry, another medical field. It was mentioned how Emirati students in fields such as Business and IT felt about the effect PBL had on their quality of learning. If Emirati students were satisfied with the quality of learning they gained through PBL, then it could be suggested that the pedagogy was working effectively in the HCT tertiary education courses. Student evaluations of pedagogy are important and using the variable of quality of learning is one way to assess the success of the curriculum.

Studies have found that students appreciate the 'hands-on' learning aspect of PBL pedagogy. Teacher-directed pedagogy does not offer hands-on learning, because knowledge is held and dictated by the teacher, with students sitting passively listening to what knowledge is being dictated. Research by Khaki, Tubbs, Zarrintan, Khamnei, Shoja, Sadeghi and Ahadi (2007) found that Iranian students report appreciation of PBL because of the practical nature of the pedagogy. These first-year medical trainee students felt PBL was more effective than teacher-directed pedagogy in learning gross anatomy. A reason given by the students for why PBL was

rated more highly was that the pedagogy gave them opportunities to learn from hands-on experiences based on authentic medical-based problems. Students could make connections with the information they are learning through practical means because the focus is on real-world situations and products, which stimulates learning to be more intriguing. Compared to teacher-directed teaching where students are asked to sit and listen to knowledge: there is no-hands on experimenting, no creative impulse or interaction with groups to make a product. PBL gives students opportunities to participate in 'hands-on' learning (Khoiriyah, Roberts, Jorm& Van der Vleuten, 2015), to create and experiment (Utecht, 2003), a more cognitively stimulating exercise (Biggs & Tang, 2011). The practical aspect of PBL is outlined by two parts of the constructivist design principles acknowledged by Jonassen (1991), in that teachers provide real-world environments which employ the appropriate context so it makes the learning relevant, and have a focus on using realistic approaches which offer the practicality of solving real-world problems. By having realistic problems and realistic contexts, the Emirati students may recognise the benefits from learning from such contexts. What is unknown is whether Emirati students recognise the benefits of learning through hands-on experiences. Similarly, Harun, Yusof, Jamaludin and Hassan (2013) obtained a result in which Malaysian engineering students valued PBL for its practical nature. The hands-on experiences revealed to the students the reality of the engineering workforce, the importance of what they were learning, and how the issues being learnt had real-world application. If these Malaysian engineering students understood how their hands-on learning experiences helped them prepare for the workforce, it would be interesting to learn if the same situation existed for Emirati students of the HCT technical college.

In Brazil, Riberio and Mizukami (2005) found that Brazilian university engineering students appreciated PBL because the hands-on learning aspect was motivating and rewarding. On the other hand, Business and IT Emirati students may not find the hands-on learning aspect of PBL rewarding and motivating; therefore, this research needs to establish an investigation into this aspect. Bielenberg and Gillway (2007) found Emirati foundational students rated PBL pedagogy highly because they found the hands-on approach useful. This group were sourced from a foundation program based in Zayed University, but what they found useful in PBL may be different to what is found useful by other tertiary education Emirati students. What would be interesting to discover is whether Emirati students appreciate PBL for its hands-on learning. This

could help give some understanding if Emirati students are able to learn new information together with what they already know, which is based in constructivism. This finding could help establish how well Emirati students are responding to the concepts and principles of constructivism. The theory could help explain why PBL could be appreciated by Emirati students. This theory establishes that because PBL is based on its open-ended, learner-centred and group work model, it is being promoted as an effective way to develop Emirati students' skills in higher-order thinking and practical development. What needs to be known is whether Emirati students are accepting the aims of this Western perspective based pedagogy. Therefore, with the UAE government inviting the Western universities and Western teachers to utilise constructivist based pedagogies such as PBL in courses, so as to stimulate Emirati students into effective learning, it is important to establish whether Emirati students are reacting positively to the hands-on aspect of the pedagogy.

The skill of undertaking research can motivate students to engage with their learning, as Mohd-Yusof, Hamid, Hassim, Harun, and Helmi (2013) found. The Malaysian chemical engineering students reported they were more self-motivated when taught through PBL. The researchers felt the students appreciated PBL because they recognised the problem context and they had to become self-directed learners. The researchers observed that when the students became more self-directed, this improved their motivation to undertake the PBL investigation to learn how to solve the project problem. It is unknown yet whether PBL is motivating Emirati students to solve the problem aspect of PBL projects. Emirati students are not well known for being very motivated in their learning (Dahl, 2009) and it needs to be established whether the problem-solving aspect will motivate the students. Many teachers and educator planners within the UAE wish to see higher levels of motivation in Emirati students, as they lack strong motivation to be educated (Young, 2013). Students require levels of motivation that allow them to maintain their interest and perseverance to complete tasks. As Dahl recognised, "Learning in a constructivist setting requires substantially more effort than the passive learning to which most Arab students are accustomed" (2009, p.21), Emirati students in Business and IT therefore needed to share that belief when undertaking their projects. Bielenberg and Gillway (2007) surveyed one foundation class of Emirati students who undertook semester-long learning by answering a real-world problem and creating a presentation of the solution through a PBL

structured course. The group of 638 students rated PBL favourably, because they felt the pedagogy motivated them to find ways to apply their knowledge to in real-world situations. Further research is needed about how motivation influences Emirati students when studying in Business and IT courses. Bielenberg and Gillway (2007) did not establish whether their mainly female students were challenged by the project and whether the challenge motivated or demotivated them. If projects are simply fun-based, they might not be challenged to overcome frustrations and failure. Dahl described Emirati students as sometimes giving up easily when the challenge is too high, a common finding with PBL projects. A study that demonstrates parts of PBL projects that motivate students to overcome challenges would assist teachers and curriculum designers in their PBL planning.

Even though there are positives about students voicing their positive evaluation of PBL, students have stated in research difficulties and frustrations with the pedagogy. Although, these challenges were in large part the result of the perceived benefit of the pedagogy, they can be still perceived by students as disadvantageous or frustrating. Challenges are often used by teachers or course planners to show students the reality of the real world, and that failure and hard work are part of the natural real world and are often encountered in real-life issues.

As indicated earlier, previous research has identified that some students like group work, however, there is other research which details findings where students dislike group work for a number of reasons. One challenge identified by students in Hasna's (2013) study was that they voiced their dislike of group work. Hasna found that male tertiary education engineering Emirati students vented frustrations with student peers who were not 'pulling their weight' in group work, those who did not meet the obligations associated with completing tasks for the group. This situation with free-riding students has been well documented by other researchers such as Burdett (2003). Burdett's research took place in an Australian university with Business students. Students voiced a greater need for teacher support to help resolve the issue of non-contributing group members. Group work is a Western constructivist-based expectation in PBL.

Learning is believed to occur better in groups and that through scaffolding and social interaction, knowledge is shared and built upon. Identifying reasons for conflict in group work within Business and IT student groups could help shed light into why students are dissatisfied with the group work. An explanation put forward by Al Rasbi (2014) and English and Kitsantas

(2013) was that Emirati students struggle with this situation because of a lack of experience in group work in secondary school. The challenge for students who want to benefit from group work is that lazy students profoundly affect group motivation and progress. Other studies, such as Dendane (2007) and Saudelli (2016), reported their students disliked group work because of infighting and disagreement over the sharing of the workload, and frustration with members who were not pulling their weight. What has yet to be established is whether the non-engaged student situation exists within the UAE HCT colleges of tertiary education Business and IT group work, and how that impacts on group progress and team feeling. Emirati students may not understand the underlying goal of PBL group work that each member has a role to play in the group, and factors such as trust, patience, and respect for each member, make the group stronger.

Another challenge that students identified through participating in PBL pedagogy was that they struggled with time management and wanted more time to complete their projects. Wan, Williams and Sher (2013) found with a group of first-year Malaysian engineering students from a German-funded technical college that PBL is time consuming. This sample of students spent a long time understanding the project problem and undertaking problem-solving activities, which resulted in difficulty completing the whole project on time. The researchers put the time factor down to a lack of previous experience in time management skills and their need to be taught how to manage their time. Australian university students in Yam and Rossini's (2010) property course reported issues with time management. What this signifies is that students in a range of institutions have time management issues with PBL and this may indicate this as a common phenomenon of the pedagogy in itself. If overseas studies are identifying students struggling with time management, it needs to be asked how serious this factor is for Emirati students. Time management has also been found to be a problem for male Emirati students. Daleure, Albon, Hinkston, Ajaif and McKeown (2013) found, from the male students' perspective, they had too many outside responsibilities such as work or family commitments to work with, which affected their time to work well in class. Other supporting studies such as Hatherley-Greene (2014), Khatib (2014) and Miqdadi, Momani, Masharqa and Elmousel (2014) reported similar issues. With males having cultural societal commitments, this group lacks exposure to learning good time-management skills. Female students struggled with PBL because they procrastinated or lacked experience in effective time management. Further research is

therefore needed to discover how Emirati students in HCT cope with time management and associated stress and its effects on engagement with the pedagogy. Bielenberg and Gillway (2007) have identified there are issues for Emirati students which affect their participation in tertiary education, which results in high levels of absenteeism and disengagement with learning. The result of these behaviours is that these students have low grades and do not pass their year of study (Swan, 2012). Bielenberg and Gillway's introduced PBL to their course to help engage Emirati students with their coursework, in the hope that with a more engaging pedagogy, students may become more motivated. They found that Emirati students responded to PBL, but they also called for further research into what made PBL successful for first-year Emirati university students. PBL requires more effort by the students because they have to undertake a range of activities such as actively finding their own resources, working in groups and reflecting on their own learning (Donnelly & Fitzmaurice, 2005). Teacher-directed environments tend to reduce students to passive listening to their teacher in an attempt to absorb knowledge from an 'expert'. The teacher or lecturer has control of both the lesson and the learning (Habok & Nagy, 2013). Students have to discuss their findings, investigate ideas and make a product. Since the form of the PBL process allows for many types of approaches to undertake investigation or knowledge building, activities such as field trips, experimentation and class discussions all involve more effort than a student undertaking an end of term examination in a teacher-directed approach. The PBL pedagogy has been identified by students of Kinnunen and Malmi (2005) as requiring greater research effort than in teacher-directed pedagogy. The researchers gathered data from observations, test scores and interviews, which reported that PBL required more involvement, self-discipline, stamina and commitment to group work. These factors exhausted the students and resulted in students having low motivation to complete the project. Kinnuren and Malami recommended that a way to better support students was for each group to have a supervising tutor to guide them. Gaining an understanding of whether Business and IT students find PBL hard work would be beneficial, because it would help provide knowledge in how teachers can support students better. As stated earlier, Emirati students have transitioned from a rote learning environment and struggle to adapt to a new, unfamiliar constructivist-based pedagogy which requires more effort on their part. It is unknown whether the students, with limited English speaking proficiency realise the effort required for reading comprehension when

adapting to the expectations of PBL, especially in finding resources on their own and processing these resources with limited English reading comprehension.

The majority of PBL tertiary education courses are taught in English as a foreign language. In HCT, students have low language proficiency, which affects their progress, performance and their level of satisfaction working in PBL. Kadir (2009) and Pathare (2011) pointed out that when PBL is used for student development in a second language, students can struggle to understand the project and express themselves proficiently. Almurshidi (2014) found that for Emirati and Saudi students, a low level of English was a handicap to their progress, even in internationally based classes within the USA. Such students were impeded in their ability to work within groups and to communicate effectively with their teachers. Earlier exposure to English language development was recommended. UAE students, who participated in a government funded discussion "Student Perspectives on Innovation Knowledge Production and the Internationalisation of Education" of changing from secondary school into university, expressed their frustration and difficulty when transitioning into tertiary education courses (Salami, 2013). The relationship of Emirati students' low English proficiency and engagement with PBL content in English requires further investigation.

Students in past research have voiced their frustration with the ambiguity of PBL, complaining that teachers do not clearly indicate whether solutions suggested by the students as a valid answer to a PBL problem are correct. Often students ask for advice on solutions they think are suitable to solve a project problem but feel frustrated if they think the teacher does not provide an appropriate response. Product Design and Manufacturing students from a Malaysian technical college vented frustration with their teacher over the uncertainty about the solution they tried to identify in a PBL task (Mansor, Abdullah, Wahab, Rasul, Nor, Nor & Raof, 2015). The uncertainty created anxiety and loss of direction. Hammel, Royeen, Bagatell, Chandler, Jensen, Loveland, and Stone (1999) reported that occupational therapy students became anxious when they were not able to identify a suitable final answer or gain what they considered to be suitable feedback from their teachers on what was the most appropriate answer to a project problem.

Allessio (2005) found that 116 liberal education undergraduate college students preferred traditional teaching methods over PBL because, when it came to sorting out relevant course information to find the problem's solution, they were uncertain what information was important

and what was not important. Kirschner, Sweller, and Clark (2006) commented that the lack of a clear answer caused students to find the PBL process frustrating and full of ambiguity. All of these studies were based in universities overseas and, except for the Malaysian students, all respondents used English as their first language, and all groups of respondents found the PBL process frustrating. For non-native speakers of English, such as Emirati students, research is needed to establish the extent to which the use of English is a cause of frustration with the PBL process. Emirati students may say that they find learning Business and IT difficult because of the expectation that they work creatively and independently, and that they learn the course material using a second language.

2.2 Teacher voice on PBL

This section focuses on presenting research on teachers' views about PBL, especially about how effective they believe it is for their students. Teachers themselves are in a position to observe and comment on how effective and efficient PBL pedagogy is for their students. The following discussion provides positive and negative views on the use of PBL pedagogy within a range of courses and studies.

As a pedagogy, teachers have stated in research that they feel that it is worthwhile for their students to learn from. A number of factors have been stated such as the Saudi teachers within Aboonq's (2015) study found that students were satisfied with the PBL learning environment. Another study, by Doğan, Batdi, and Yildirim (2011), investigated 170 primary school science teachers' views on PBL in Turkey. The majority of the teachers reported that their students found PBL an effective pedagogy, especially for learning general science concepts. The students liked the use of group work and the hands-on scientific experiments and were happy with PBL. Similar findings have been reported between 2011 and 2016, from primary through to tertiary levels of education. Teachers in the primary level of education recognise the benefits PBL has for their students. Seeing their students happy with their learning helps them to justify inclusion of the pedagogy in the science curriculum. The reasons teachers feel PBL is beneficial are listed in research done by Habok and Nagy (2016) and include teachers' endorsements for the opportunities it gives students to be creative, engaged and intrigued in research.

As well as research that students find PBL motivating, research conducted by Candler and Blair (2012) found that teachers also recognised that PBL motivates students. Allen Duch, Groh, Watson, and White (2008) reported that university lecturers felt that PBL motivated students because of its inquiry driven nature. Faculty felt the pedagogy motivated students because they saw the benefits of undertaking critical inquiry and from the rich experience from hands on learning. However, the faculty reported difficulties with maintaining motivation because of having to facilitate multiple student groups at the same time (Allen Duch, Groh, Watson & White, 2008). Beneke and Ostrosky (2008) found that teachers believed that PBL projects motivated a group of younger students who had a diverse range of special needs and required special educational support. The teachers of these students reported that through the use of project-based activities, the students were more motivated and more focused on what they were learning. Doğan et al. (2011) found that teachers believed that PBL motivated students to learn better because they were involved in group work. These studies share the finding with Candler and Blair (2012) that teachers recognise the positive impact PBL has on increasing student motivation to learn more.

Teachers have been found by research to see the benefits that PBL has for their students and feel its inclusion is important for student's development. A positive aspect of PBL in teachers' eyes is the opportunities their students can gain from learning from real-world situations (Habok & Nagy, 2016). One case study found that a high-school biology teacher valued incorporating PBL into a biology class with role-playing students taking on the roles of genetic counsellors (Lewandoski, 2007). The teacher saw that the PBL project theme gave the students a better understanding of the role genetics had to play in a real situation, which had real-world implications for those families who needed scientific intervention to start families. The teacher felt the hands-on learning aspect of PBL allowed students to retain knowledge longer because they were learning scientific facts in relation to real contexts. In another study, Habok and Nagy (2016) found from a survey of 109 teachers that the teachers perceived that PBL offered more to students because of its practical hands-on nature, which they believed was not possible within teacher-directed pedagogy. At the tertiary education level, teachers of subjects such as nursing (Shin & Kim, 2013), medicine (Habib, Baig & Mansuri, 2006) and engineering (Meksophawannagul, 2015) have all used PBL as a way to give students practical hands-on

experience with the issues that affect the particular field. Therefore, it would be notable if expatriate teachers of the Emirati students also saw the hands-on aspect of PBL helping their students in ways such as retaining knowledge longer or developing the students' skills for Business and IT. If it were shown that the teachers felt that PBL helped to develop essential skills for their students, that finding would suggest that the incorporation of PBL would be useful within UAE tertiary education. On the other hand, if the teachers were to feel that the hands-on aspect of PBL was not benefiting their students and was making the students frustrated, that finding would suggest that the pedagogy was holding their students back.

Expatriate teachers in the UAE tertiary education context may also perceive that PBL motivates their Emirati students. However, as Pathare (2011) notes, teachers of Emirati students have identified several factors which affect Emirati students' motivation, including their level of English, the expectation to work hard and the expectation to work and think in Western ways. Another possible factor that the research above does not identify, and thus needs to be explored, is whether expatriate teachers see their own beliefs and expectations of PBL as affecting their students' motivation.

One important reason why teachers bring PBL into their classwork is to give students the opportunity to develop their group skills. Teachers see group work as an important skill to develop in their students because it offers more benefits than if students study independently, as is generally done through use of the teacher-directed approach. Group work helps reflect the theory of constructivism in real-world practice, as illustrated in Dogan, Batdi, and Yildirim's (2011) study, in which the researchers found that teachers believed PBL group work was a major benefit for their students in regard to learning team skills. The majority of the 120 Turkish teachers felt that the more experienced students could help transfer knowledge to less knowledgeable students. Habok and Nagy (2015) found that teachers felt their students gained from the exposure to communication, collaboration skills and improved student motivation offered by PBL. With university, undergraduate and postgraduate student groups, Alessio (2012, p. 8), found that students were actively engaged in their group work, asking each other questions, engaging in discussions and using outside resources to form "a type of learning community." Hmelo-Silver and Barrows (2006) and Habok and Nagy (2016) agreed that teachers chose group

work for their PBL classes because it gave their students a learning environment which was more interesting and motivating. Hasna (2009) felt that his Emirati engineering students benefited from group work, including developing essential team skills that were found lacking in his engineering class.

Communicating within the UAE is a unique experience for students in tertiary education. For example, students can be taught by a Western teacher in one period, and then face an English-speaking Arabic teacher in the next. Students also face other nationalities who are in differing work roles outside the university and who may use simplified English in their communication. These factors affect students' ability to communicate well in English, which affects group work. Therefore, it may prove difficult for teachers to endorse the effectiveness of group work when the students cannot communicate well in English. Teachers face the dilemma that although group work may be difficult for developing skills and language, it may provide benefits which outweigh these negative aspects. Therefore, given such unknowns, it is important for this research to find whether or not expatriate teachers identify group work as being beneficial for their students.

Further, certain studies claim that teachers notice students learn more in depth through PBL-course based pedagogy (for example Doğan et al., 2011; Lewantdoski, 2007). Researchers such as Habok and Nagy (2016) found that teachers included PBL in their classes because it gave their students opportunities to undertake investigative research, which improved learning. Pederson and Liu (2013) felt that students had limited learning when taught through a teacher-directed approach, and they saw an improvement in learning when students were given the freedom to investigate through PBL. Riddle (2009) found that teachers felt restricted when asked to teach students through a teacher-directed approach. However, the same teachers felt that PBL gave their students opportunities to investigate, ask new questions, take risks and receive critical feedback, which contributed to improved student learning. Further research is required within the UAE HCT context to determine whether teachers feel that use of PBL improves Emirati student learning of Business and IT.

However, teachers have identified there are number of challenges for teachers and challenges teachers have observed PBL presents for their students. PBL as a pedagogy requires much input and resource provision not only by the students but also by teachers. Kirikova, Brunevičiūtė, Gudaitytė, Sveikauskas, and Ramanauskas (2013) have concluded that teachers need to provide greater support for students who are struggling with PBL. Teachers reported that without their support, students would easily be demotivated and give up working on their projects. Another issue identified by Kirikova et al. (2013) was that teachers felt drained by having to give advice on solutions students were using to solve project problems, and also by having to deal with group dysfunction. Hasna (2009) found that as a teacher, he had to constantly support his Emirati engineering students by addressing their questions on how to complete a project. When teachers anticipate and see that a particular pedagogy is placing hardship on their students in group work, careful preparation and planning is required, as suggested by English and Kitsantas (2013). Overseas research such as from Ram, Ram, Holzman, and Sprague (2010) clearly indicates a need for teachers to support their students in PBL. The level of support that is needed and how that support is undertaken can be in many forms (see Torp & Sage, 2002).

In one study, teachers saw that their students required much support in group work, with students being frustrated working in groups and teachers struggling to solve this issue (Pedersen & Liu, 2013). The 15 middle-school science teachers noted that when group work was assigned, some relatively eager students became frustrated with other students who had lower levels of motivation; the more eager students complained that they were doing all the work, which interfered with their learning. Ertmer and Simons (2014) noted that to overcome issues such as those identified by Pederson and Liu (2013) and make student group work successful requires effort, planning and careful intervention by the teacher. Teachers are well aware that PBL is frustrating for their students, such as teachers in Van Barneveld, Strobel, and Light (2012) interviewed 28 engineering teachers who had observed that their students were frustrated with the PBL process. This frustration led the teachers to change their role to being that of a facilitator. Other challenges these researchers identified when interviewing teachers were that students struggled with time management and English proficiency.

2.3 Engagement impact of local culture and gender

This section firstly details the theoretical background of the concept of engagement. The concept of engagement is presented in Section 2.3.1 and is followed with a short section on how gender can influence student engagement. Section 2.3.3 outlines how male Emirati students are less engaged with their learning, while Section 2.3.4 details how female Emirati students are more engaged.

Engagement as a concept for this thesis in education needs to be defined and explained. Shulman's (1986) view on the importance of engagement is that: "learning begins with student engagement" (p. 38). An early model of engagement theory (ET) was proposed by Kearsley and Schneiderman (1999), who argued that engagement theory suggests that "Students should be meaningfully involved in their learning through interactive and worthwhile tasks" (p. 2) and that this engagement could promote collaborative group interaction. Skinner and Belmont (1993) defined ET: [Students] who are engaged show sustained behavioural involvement in learning activities accompanied by a positive emotional tone. They select tasks at the border of their competencies, initiate action when given the opportunity, and exert intense effort and concentration in the implementation of learning tasks." (p. 572). Trowler and Trowler (2012) defined engagement similarly, with the focus on student energy and effort: Student engagement is concerned with the interaction between the time, effort and other relevant resources invested by both students and their institutions intended to optimise the student experience and enhance the learning outcomes and development of students and the performance and reputation of the institution (p. 3).

The concept of engagement is important when investigating PBL. Existing approaches for assessing student engagement in learning have focussed solely on behaviours, while most researchers agree that academic engagement is a multifaceted construct (Bean, 2005; Fredericks et al., 2004; Handelsman, Fund, Miller, Lauffer & Pribbenow, 2005). Engagement as a concept is now accepted as involving elements which include intellectual, emotional, behavioural, cognitive, physical, social and cultural engagement (Hidden Curriculum, 2014), with student voice being a qualitative assessment of students' level of engagement. One way to understand and rate a student's level of engagement is to use Schlechty's (2001) descriptive scale of

differing levels of engagement. This scale was used to answer the third research question. Schlechty identified varying levels of engagement, from student to student and at the classroom level. At the individual student level, Schlechty created a five-scale continuum to define the level of engagement.

These engagement descriptors are as follows: authentic engagement (high levels of engagement), ritual engagement, passive compliance, retreatism and rebellion (complete disengagement and being off-task). These levels show that there is differentiation beyond simply judging whether a student is "motivated or they are not" (p. 3). The scale provides a framework for educators to discuss and describe how engaged the observed students are. It can help teachers identify whether their teaching strategies need to be re-evaluated and how to change strategies to ensure that they can move students from a lower level to a higher level in which the students are better motivated and engaged. Schlechty noted that there are links between students' learning and their level of engagement with a task, so he suggested that teachers need to continuously evaluate the level of engagement of their students. If the teachers are observing low levels of engagement, then they need to redesign tasks which help increase student levels of engagement. Schlechty argued that engaged students are investing energy into what they are learning. He regarded engagement as an active observable behaviour, such as students being attentive, being focused on the project and demonstrating value of the project through enthusiasm, which reflects the personal intrinsic value they place on doing the project.

This section provides background on the issue of how gender affects the level of involvement with education for students, including their involvement with the PBL pedagogy. Cultural reasons help explain why there are differences in male and female Emirati students' engagement with education. Education in the UAE is segregated by gender. Gender affects the length of school retention and how education influences future employment prospects of students. Male students leave school earlier than female students, yet they do not demonstrate interest in developing the strong educational background sought by the public and private employment sectors. Emirati women, on the other hand, stay longer in tertiary education, which is reflected in their graduating in larger numbers, and having better achievement academically than Emirati male students (Knowledge and Human Development Authority, 2012; Ridge,

2011). One reason put forward by Ridge (2011) is that female Emirati students are taught solely by female Emirati teachers.

Gender has been recognised as an influencing factor in how female and male students respond to the PBL pedagogy (Brown, Boyer, Mayall, Johnson, Butler, Weir, Florea, Hernandez & Reis, 2003; Tison, Bateman & Culver, 2009). Ozan, Köse, and Gündoğdu (2012) found that gender is a significant variable in applying PBL. They found that males generally prefer superficial learning approaches, while females prefer strategic methods. In a similar finding, Senemoglu (2011) concluded that female students choose both superficial and strategic learning approaches. She also found that gender influences the outcomes of PBL and has many positive effects on small-group learning activity outcomes in all-female groups, more so than in a mixed-gender class. An earlier UAE study by Das Carlo, Swadi, and Mpofu (2003) found that the facilitator rated female groups as being more productive, with higher scores on motivation, cohesion, interaction and elaboration than males. It was found that males had higher scores of free riding and withdrawing from the group than females. Similarly, Alshaibani, Sachs-Robertson, Al Shazali, Sequeira, Hamdy, and Al-Roomi (2003) reported that males and females display different styles of thinking and learning and have different approaches to PBL problem-solving. Gender differences also appear for learning outcomes on PBL assessment results (Kassab, Abu-Hijleh, Al-Shboul& Hamdy, 2005). Kassab et al. found that for both genders, examination results were the same but that females performed better in groups. They also found that female groups were more responsive to their PBL group tutors, while males were more interested in communicating with their classroom peers.

The gender issues within the UAE are significant for the future of Emirati student employment. Ridge (2007) reported that there are gender inequalities which exist within the UAE. One fact is that Emirati women make up most of tertiary enrolment students within the UAE tertiary education system. There is a significant gender gap, with male students performing at a lower standard than females (Jabeen, Katiosloudes & Kukunuru, 2016; Ridge, 2009). Academically, male students are being outperformed by female students in many subjects and in terms of grades. Though there is a general increase in both male and female student enrolments in tertiary education, these growing inequalities are likely to affect future employment

opportunities (Sabban, cited in Al Remeithi, 2015). The issue of education inequality is compounded further by males dropping out of secondary school and university at greater rates than females. Reasons male students give for dropping out of education were to find employment, to support family obligations where there are members suffering from poor health or the need to support the family with money. Gender roles are changing in the UAE, as cultural attitudes are changing, with women working outside the home more, even though men are still the dominant support for families. Males are often expected to leave education earlier to gain employment to support the family and are not asked to continue their education. Men have greater access to the military, police and petroleum industry, whereas Emirati women do not. Women realise they have to compete more for scarce employment, and therefore they place greater value on gaining a tertiary education, which is reflected in the tertiary education enrolment rates. Alfattah (2010) recognised that females have to work hard for a good education in order to get a job, while males have easier access to work in the male-dominated UAE working society. Having a balanced gender Emirati workforce for the UAE is important, particularly if the UAE is to move beyond its current economy and competitiveness. If the current generation and coming population of Emirati students do not gain lifelong skills and training, Emirati competitiveness and economic progress will continue to be dependent on the use of expatriate labour, which will upset the federal government's long-term plans for Emiratisation.

Even though female Emirati students have been noted to be engaged in their learning, it seems opposite may be true for male Emirati students have been noted as being lethargic, unmotivated and unwilling to pursue complete courses of tertiary education (Qashoa, 2009; Al Maskari, cited in Young, 2013). Male students have the lowest enrolment in UAE universities and have the highest number of dropouts (Ridge, 2011). Thomas (2014) confirmed that male Emirati students in tertiary education were less engaged with their classwork than their female counterparts claiming they were more likely to be juggling family responsibilities, employment and education. In contrast to the males, according to PISA reports (2012 and 2009), female students were more motivated and outperformed their male counterparts academically (OECD, 2013).

Male Emirati student motivation is low. Shaikha Al Maskari (cited in Young, 2013, p. 1) found in Dubai in 2012 that: "60 per cent of Emirati high school students showed very little motivation … [and] did not care what type of course they did, or career they chose." Trying to motivate male students, the federal government has gone to great lengths, even paying high school students to perform better. The government offered students 5000 AED to reach grades over 90 and some students were offered a monthly allowance (Young, 2013, p. 54).

Motivating 'paid' students is difficult when they are already aware of the work environment that awaits them after graduation. Students realise that the skills they have are suitable for low to medium level jobs which are below their ambitions to secure permanent lifetime government jobs and the guaranteed benefits of those occupants (Hatherly-Green, cited in Al Khoori, 2015). An additional complication "for Emiratis was balancing the desire for security, job development opportunities, good hours, benefits and compensation, family and social pressures against their own dreams and desires when looking for the right kind of work."

Another factor which impacts male career aspirations is that employers are more likely to employ foreign largest percentage workers who are at least as skilled or even better skilled as local male Emirati students (Hoteit, cited in Young, 2013). Male students are not adept enough for the higher technical skilled jobs so they need to spend more time in university to build up their future employment skills. Another factor affecting Emirati male student engagement with tertiary education is the UAE's open immigration policy. Many employers prefer to engage cheaper overseas labour, which then influences male students' confidence and willingness to work in the private sector. Male students often graduate with low to middle skill levels, but jobs at these levels are regularly filled by cheaper expatriates. Hoteit (2011, cited in Young, 2013) notes:

[Emirati graduates] have the skills for low to medium level jobs, but they don't desire those jobs, and those jobs don't desire them because people can get cheaper labour. But for higher skilled jobs [Emiratis] are not as skilled, so there's a need to... work on building skills of Emiratis. But as long as you have an open immigration policy, you stifle innovation. (p. 56)

Ridge and Farah (2011) found that Emirati students' lack of engagement in tertiary education was for economic and financial reasons. They suggested that the low motivation of Emirati males to pursue tertiary education was the result of the realisation that there were no longer any future opportunities in the government public sector where the economic rewards are greater. One significant factor that could be affecting the decisions of males regarding engaging in tertiary education is a perceived lack of ensuing economic benefits. Emirati male students, seeing no future employment opportunities in a public service job which could lead to a relatively high income, and having to pursue positions with lower income and longer working hours in the private sector, become disengaged and demotivated in the classroom. Hatherly-Greene (2014) found that the largest percentage of males were going into the police or military, and the next largest group were looking for work or staying at home. It seems that UAE males perceive that the nominal gains achieved through tertiary education are not enough to offset the rewards of going directly into employment. Social and educational factors also impede male Emirati student progress through education. For example, often male students are expected in accordance with cultural tradition to be available to the family whenever they are called upon. Family commitments take priority over class attendance (Daleure, Albon, Hinkston, Ajaif& McKeown, 2015). As found by Daleure, et al (2015), reasons given by male students for being absent from classes was due to a medical issue in the family, helping take a family member to family or work-related appointment or just due to a disinterest in going to class. Another belief these male students hold onto strongly is that there is often they have a family member, an uncle or cousin who is working in the public sector and the student has a belief this person can help them find work in the same sector after they graduate. But now the work situation has changed in recent years and this situation is no longer holding true. Male Emirati progress in education is further impeded because of the secondary school settings, which means they end up performing poorly. The poor academic performance of male students in English and other subjects is partly because these subjects are taught by ill-equipped and poorly qualified expatriate Middle Eastern teachers from Egypt, Palestine and Jordon, who are inexperienced English teachers. Further progress for male students in tertiary education is impeded because most disciplines are taught in English and most of the male students do not have an IELTS level of 5.0, which reduces their chances to enrol in their chosen field when they enter university. Therefore, they have to undertake some form of foundational course in English and possibly other subjects as IT, Maths,

and Arabic to raise their level of skills so to allow them to finally enter their chosen discipline department.

There are restrictions on female Emirati students which limits their opportunities because of their gender. Female students need parental or spousal permission to work outside of the home and greater permission has to be sought if the employment is undertaken further away in another city or far location. Female Emirati students exhibit a different attitude, showing that they are motivated to attain tertiary education. The federal government permits all-female gender campuses at a number of the UAE universities. Female students have higher enrolment and lower dropout rates than their male counterparts (Ridge, 2011). They are highly engaged in their education, are motivated to learn and have the largest number of graduates. This finding was confirmed by the United Arab Emiratis Ministry of Tertiary education and Scientific Research (2014). To illustrate the significance of disparity between the ratios of male and female students, the UAE University stated that in the 2015/16 year, there were 13,479 registered students, with 19% being male and 81% being female (UAE University, 2016). One reason females in the UAE are motivated to do well in tertiary education is the greater difficulty they have in finding a job compared to males (Alfattah, 2010). Other reasons females are motivated to study harder include that they feel they are serving their country better and can use education as a symbol of higher social service (Findlow, 2006). Similarly, Engin and McKewon (2012) found that females reported that they were motivated to have a tertiary education degree because they wanted to prove themselves to their family and help develop Emirati society.

2.4 Theoretical framework for the thesis

This section presents the theoretical basis for PBL and for the concept map in Figure 2.1. Firstly, the theoretical basis for PBL through constructivism and experiential theory are presented followed by theories related to PBL, such as motivation and engagement. The section ends with how differing theories and pedagogies such as constructivism, teacher-directed pedagogy and student voice are integrated with PBL. Students are asked to create their own knowledge base which from the PBL activity and corresponding research they undertake, motivation and engagement are activated, which in turn affect their beliefs and attitudes. PBL has the potential to activate interest, wonderment and fun, helping students to have a positive attitude, which is reflected in their motivation and engagement in a cyclic way. From their

evaluations, an understanding can be gained of whether the pedagogy is capturing their interest. In PBL, students are actively engaged in their own research and are undertaking deeper learning, rather than surface learning as found in teacher-directed pedagogy.

Figure 2.1 details how supporting theories help provide a theoretical basis for this research. First is the theory of constructivism, which helps explain how experiential learning relates to PBL. The theory of constructivism explains that students learn by having new experiences and develop new knowledge by reflecting on those experiences. PBL is one version of experiential learning, in which students investigate a problem and undertake research to suggest a viable solution. Through doing a PBL project, students may participate on a scale of being highly engaged through to being completely disengaged. It is the purpose of this research to use the student and teacher views to discover what aspects of PBL affect students' engagement and disengagement. This research is encompassed within a CBL classroom environment, meaning students are learning content via a foreign language. Projects are used within this constructivist curriculum-based style so as to offer students practical and meaningful activities for learning content.

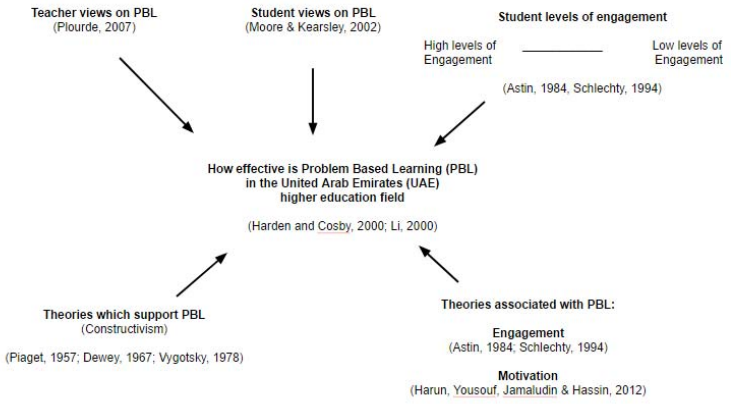

Figure 2.1: Conceptual map of this thesis

Source: Developed by this researcher using Google Draw

The following section outlines the concept map represented in Figure 2.1. PBL is part of other experiential pedagogies such as Project Based Learning (PrBL) and Case Based Learning

(CBL), as it uses reality-based scenarios and cases that relate to real life (Larmer, 2015). The PBL process typically follows a pattern: a problem is presented to the students, students are allocated into groups, students are asked to work within their teams to provide suitable solutions and, lastly, students present their differing solutions. PBL differs from other similar pedagogies, such as CBL, in a number of elements. Firstly, PBL starts with a focus on the problem rather than with theoretical content of the assessment theme. Secondly, students can simultaneously learn content concepts, such as Business and IT concepts, while solving the project problem (Hallinger, 2012). This project problem might consist of students being asked to investigate the problems faced by a local business and provide possible solutions. Thirdly, PBL asks students to analyse and suggest why the implementation of a solution is appropriate for the problem. PBL is useful for student learning because it addresses issues and solicits solutions which solve the problem being investigated (Hallinger, 2012), and it utilises a constructivist approach to learning (Dewey, 1981). Connections are made by students between theory and real-world practice (see Hung, 2011; Schmidt, Rotgans & Yew, 2011).

With PBL, students have to go through a process of defining an environmental problem and creating an understanding of the problem, including determining what they know about the problem and what they need to know. The group then creates possible solutions, and their solutions are shared in a report, presentation or both. PBL is used more often in the subject areas of business, engineering and medical courses within the tertiary education sector (Larmer, 2015). Benefits of PBL, as identified by Weimer (2009), include student satisfaction and students rating PBL as providing better understanding and lifelong skill learning; but also, there are constraints, inadequate allocation of resources, time limitations and the need to use increased cognitive processing to understand what is required (Lai & Tang, 2011). A PBL-based curriculum provides an authentic learning experience that fosters active learning, supports knowledge construction and naturally integrates school learning and real life. PBL is an approach to teaching and learning which is based on the theory of constructivism. This theory is based on the principle that human knowledge is created by individuals and groups working within social communities, by more knowledgeable experts who share their insights with others in the community.

The theory has diverged into two streams of thought: cognitive constructivism and social constructivism. Cognitive constructivism focuses on the precept that learning comes from

knowledge that is discovered and cognitively reorganised in the mind of the individual. This version of constructivism stems from Piaget's (1973) school of thought and is illustrated by teachers encouraging students to create their own knowledge through their personal experiences (Rummel, 2008). Social constructivism through a Vygotsky perspective is that knowledge is created through interaction with other students alongside authentic experiences (Vygotsky, 196). From Gulati's (2008, p. 184) perspective, the teacher plays an important role in helping organise learning activities which involve active engagement, research, problem-solving and working in teams. Thus, the teacher is a facilitator, for students learning together in groups by questioning, answering and creating their own conclusions. Constructivism in the view of Kemp (2007) helps offer a way of describing how students learn does is offer a way to describe learning. Richardson (2003) points out that constructivism not only describes how learners construct knowledge but helps describe how pedagogies such as PBL can help explain how students acquire knowledge.

Also, Richardson (2003) proposed that PBL is a method of teaching through constructivism. In particular, PBL involves negotiation with learners, starts with content focused at the appropriate level where students are in their knowledge and allows students greater control of PBL projects. The task for the PBL project is one of the key facilitators of students' focus, as they are asked to: "discover underlying processes, structures or reasons for problem(s)" (Gilbert & Foster, 1998, p. 245); from this, the group is asked to produce possible solutions. The teacher has to be involved as facilitator to ensure healthy dialogue is maintained throughout group work negotiations so that learning is occurring (Savin Baden & Major, 2004). This teamwork connects back to Richardson's (2003) idea of learner metacognition, where team members are co-constructing knowledge individually and as a team. Another aspect of PBL as a constructive-based method of teaching is that the goal for the teacher is to promote student understanding, with the transmission of knowledge undertaken through group work research and dialogue transmission (Kemp, 2007). When teachers have an understanding of constructivist theory, it helps them reflect on how PBL can be organised for classroom practice and it influences their decisions about how they plan pedagogical methods to help students' learning. Therefore, constructivism is connected to PBL because the goal of PBL pedagogy is to adopt those learning methods which promote student understanding over the transmission of knowledge (Kemp, 2007). A constructivist PBL-based classroom reflects learning through student-to-student or

student-to-teacher interaction, and by engaging in PBL tasks. Also, a constructivist-based classroom allows students to experience learning through a range of experiences such as experimentation, risk and challenge (Gray, 2007).

PBL is a teaching method in which students gain knowledge and skills by investigating a complex problem or question over a long period of allocated time and respond by presenting solutions which answer the problem (Li, 2014, p. 15). Savery (2006, p. 1) has defined PBL as:"…an instructional (and curricular) learner-centered approach that empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop a viable solution to a defined problem."

Another theory on which PBL is based is experiential theory. Experiential theory and PBL are connected because these approaches use realistic problematic scenarios for students to discover sensory answers. Experiential learning theory has four distinct learning styles, based on a four-stage learning cycle: concrete experience, reflective observation, abstract conceptualisation and active experimentation (Kolb, 1984, p. 41). Kolb's model provides an understanding that there are differences in learning for different individuals and explains how learners learn differently through hands-on experiences. The four-stage learning process begins with concrete experience, where learners have initial contact with people and problems in situations such as work-based practicums. Secondly, learning comes from reflective observation, with the course requiring students to undertake reflective thought, such as by keeping a reflective journal of their experiences. Abstract conceptualisation occurs when students are asked to conceptualise their observations into theories. Fourthly, the model focuses on active experimentation, in which students prepare to test a theory in future experience.

Experiential theory and the constructivist approach to PBL validate each person's experience and the learner's construction of knowledge (Bohgossian, 2006). Previous experiences help learners to construct new knowledge that is personally relevant, and the new knowledge is enhanced when constructed in social learning environments such as the classroom. PBL becomes the avenue or tool through which students can consider a problem or issue as a group and learn the underlying concepts and issues which are important for a particular topic (Schmidt, Loyens, Gog & Paa, 2007).

One element connected to PBL is the idea of motivation, as noted by Lam, Cheng& Ma (2009) is that this is an essential element in keeping the student interested and engaged in their project. A similar model of motivation to that of Biggs and Tang (2007) is that of Pintrich (2003), where he identifies that students' motivation can be affected or released because of three factors: firstly, the students see the importance of the task; secondly, the students believe they have the ability to undertake the task; and lastly, the students feel comfortable and secure in their learning surroundings. Ability and expectancy value beliefs are important to the theory of expectancy–value theory of motivation. Therefore, this theory gives recognition in helping create an understanding of students' achievement behaviours and academic outcomes. When the student develops a desire to be successful, it is based on their beliefs and confidence they can accomplish the task (self-efficacy) and the degree the student believes the task is worth pursuing (task value), as explained by Lau, Liem and Nie (2008).

The relationship of these theories of motivation from the perspective of Harun et al. (2013) is that they help describe the reason students may resist during their first experiences of PBL. When they feel insecure about the PBL process, the students are lacking any previous experience in the pedagogy, and naturally see the task as having no value; they may also have a personal belief they have no ability to perform the task. However, if the teacher is able to transition the students to understand the value of the exercise and that they have the power to complete the task, students are more likely to change their perspective and undertake tasks. Thus, the presence and influence of the teacher is important in helping direct the student's motivation, because students in PBL are consequently encouraged to believe they can succeed.

When looking at what affects students in their PBL projects, Biggs and Tang (2007) suggest that the students are influenced by a range of motivational factors, including extrinsic, social, achievement and intrinsic factors. These factors help describe the expectancy-value motivation theory. From the perspective of Rabideau (2005), extrinsic, social and achievement motivation stem from previously experienced teaching methods and assessment methods such as essays and examinations. Intrinsic motivation drives students to approach their learning much differently than extrinsic motivation. An intrinsically motivated student will pursue through difficulties and use curiosity to arouse their inner self to pursue an answer to the knowledge gap they are aware of (Groccia, Alsudairi& Buskist, 2012). The more curious the student is to fill the

knowledge gap, the more intrinsically motivated the student is and, therefore, to adapt deeper learning techniques and use methods which allow knowledge development, such as interviews, watching documentaries, using group discussions and self-research. On the other hand, extrinsically motivated students are only focused on the result of the assessment – the final grade. Therefore, their learning is only superficial, as they only pursue surface learning, because they focus on what will be required to pass the course (Groccia, et al, 2012). Thus, learning becomes more of a chore and unenjoyable. If teachers are able to stimulate intrinsic motivation in a student, the approach to learning changes from boredom and resistance to learning becoming fun, encouraging and engaging.

Another framing concept is engagement (Figure 2.1) which is an essential component in a student's ability to learn new knowledge (Christenson, Reschly& Wylie, 2012). Without engagement, students become distracted and disinterested in learning. Engagement is an important element for students' interaction with PBL, as with it, students remain motivated to overcome many of the hurdles that are presented throughout the process. Engagement can be observed in the students' behaviour and communication with their fellow students and teacher, as they focus on working on those goals to be completed. Parsons and Taylor (2011) argue that studying engagement is important for any educational research, because the purpose for education has changed from in the past, because the world has changed; for example, through the impact of globalisation and the requirement for lifelong skills. Students have adjusted to the changes in the world, such as the revolutionary impact of technology, but education has not always kept up with change. Therefore, there are gaps between what students want and need, and what education provides. Willms (2003) suggests that engagement is important because it has long term consequences. She suggests that if students are disengaged often in class, this will impact in their future academic achievement, which will impact their future employment. The Emirati students' level of engagement with their PBL projects is currently unknown and it is necessary to discover the impact of the level of engagement.

Student engagement has been linked to intellectual and academic success (Pascarella & Terenzini, 2005). The construct has been defined in a range of views, which include behavioural, cognitive and emotional aspects of student performance. Kahu (2013, p. 763) observed that when they first start tertiary education, students go through a period of culture shock, which impairs

their level of engagement with learning and they have to learn the necessary "social, cultural, and academic capital to fit into the university culture." Kahu speculated that this is why early entrant students are often disengaged and feel alienated, and she suggested that educational institutions should take on the responsibility by ensuring students learn how to engage with their classwork. Engagement has an important connection to PBL, as the intellectual problem-solving activities have been shown to promote cognitive engagement (Rotgans et al., 2011). Student engagement in the classroom has been found to have direct relationships to other factors which impact student numbers and the influence of the university, such as student retention from year to year and showing persistence to reach graduation (Mosholder & Tolman, 2012). In addition, when students participate in a pedagogy, there is a level of engagement, and this level of engagement can be observed across a continuum, where there may be students who are fully engaged, while on the other extreme some may be completely disengaged. One difference that has been noted by authors such as Engin and McKeown (2012) is that there are differing levels of engagement, not only between individual Emirati students but between genders. Also, student participation in PBL can represent student voice and thus student voice can be gleaned from the students' observed behaviours in the pedagogy (Czerniawski & Kidd, 2011). From this, it can be used to show what differences may exist between male and female Emirati students' participation in PBL.

The following section explains how PBL and constructivism are connected. Constructivism is a philosophy which helps explain how students learn (Har, 2013). Its foundation is that students construct understanding and knowledge from their engagement with content through experiencing situations and reflecting on these experiences. Thus, with the process of reflection, a new experience on is based on previous experiences and changes are made to what was assumed in the past, with new or old ideas being held or discarded. One of the important theories connected with PBL is the theory of constructivism. PBL could be seen as the active personification of constructivism, students are actively constructing knowledge from carefully crafted "ill-structured" problems (Burrows, 1988). Constructivism is based in people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. Savery and Duffy (2001) took an approach to making an understanding of constructivism in education simpler by proposing the following three underlying concepts, as detailed below.

One of the important theories connected with PBL is the theory of constructivism. PBL exemplifies constructivism. Students actively construct knowledge from carefully crafted "ill-structured" problems (Burrows, 1988). Constructivism is based in people constructing their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. Savery and Duffy (2001) constructed a simpler approach to the understanding of constructivism in education by proposing the following three underlying concepts. PBL is a representation of the constructivism theory whereby students interact to learn from the environment they are engaged in. From the Savery and Duffy perspective of constructivism there is no separation from the understanding and the way a student learns. Students are placed in an environment where they have to undertake their own learning. They investigate authentic problems by undertaking 'hands on' activities such as surveys, library research, or for example the deconstruction and reconstruction of a machine engine, instead of being shown by a teacher.

Secondly, in addition to internal personal satisfaction, PBL gives the learner the goal of solving a problem thereby stimulating intellectual motivation to gain informed understanding of how to solve the issue. This personalised learning develops critical thinking, problem solving and collaborative skills with which to formulate hypotheses, conduct data searches, and perform experiments (Kemp, 2007). Students thereby working in groups, formulating answers from research and discussions help students to scaffold their own learning, to formulate solutions and apply them to problems with explanations and justifications (Tan, 2016). Thirdly, constructivism is also based on the belief that knowledge is constructed from social interaction. Group members share their understandings and answers to the problem that they test, debate and accept or reject. Social interaction stimulates learning and this is where PBL and constructivism theory meet (Tan, 2016). PBL provides a physical realistic representation of the theoretical concepts of constructivism where knowledge is co-constructed with others (Kemp, 2007). This process is then finalised by students undertaking reflection of their project (Ram, Ram & Sprague, 2003).

The relationship between Vygotsky's Zone of Proximal Development (ZPD) and Problem Based Learning (PBL) is discussed in the following section. Vygotsky (1978, p.86) claimed that the zone of proximal development is, "the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers."

In a PBL situation, the student is in a zone of current development not yet achieving the task through their own independent learning. There is however more potential learning which can be reached in the zone of proximal development with the help of a more knowledgeable peer, a role filled by a more knowledgeable group member or the teacher. A Zone of Current Development (ZCD) exists when student groups in a class are presented with a problem. Through discussion they diagnose what each member knows about the problem. From this, each group member and the teacher understands where each member is at with their level of understanding of the issue and what each member can contribute from their set of skills. The challenge for the performance of group discussions is that the group needs effective skills in evaluating and reflecting. One strategy suggested by Delisle (1997) is the use of workstations where groups undertake each activity separately. A workstation is set up for students to discuss and write down what they understand the problem to be. Another workstation asks the students to reflect on what their own experiences have been in relation to the posed problem or issue. Another workstation is used to discuss delegation of responsibilities for each member to undertake.

The teacher is present through the workstation stages to help the students to progress to the zone of proximal development. The teacher's focus is on how to help the groups to learn how to share discussions. For example, the teacher plays a video modelling example of effective and poor group discussions. From that stage, the students then progress to their own group discussions at each workstation. Teacher presence assists personal interactions among the students and allows the groups to learn facilitation skills; thereby learning to work independently to a ZPD where they do not need much intervention by the teacher. Vygotsky rejected Piagetian thinking that it was possible to separate learning from its social context. Vygotsky felt that learning took place within the ZPD, when learning occurred alongside more experienced experts. He maintained that without the presence of experts, no learning or understanding took place (Guven & Valais, 2014; Hartland, 2003). Therefore, learning alone would limit knowledge development. Consequently, to ensure knowledge development, certain conditions must exist, such as everyone coming to agreement on what they are learning through the project. Secondly, scaffolding helps explain how a task can be adjusted to the level of the student's ability and when it helps to guide the student to a higher level of understanding, deeper learning takes place.

Lastly, for learning to take place in the ZPD, there needs to be guided participation between experts and class group peers who are interacting through conversation, research and reflection (Hendry, Frommer & Walker, 1999).

Another aspect of Vygotsky's theory of social constructivism is the role of language and culture in helping to aid knowledge development. He felt that both these elements were very important in helping develop a student's cognitive understanding of the world and thus helped give students a framework for interpreting and voicing their world. From Vygotsky's perspective, language is an important part of a student's acquisition of knowledge, because it is occurring within social environments such as group work or class discussions (Hendry, Frommer & Walker, 1999; Vygotsky, 1978). Through the group or classroom community, more experienced or knowledgeable members help teach less experienced members the values and skills needed. Thus, in a PBL group project, some members may be more knowledgeable in how to organise a group and thus allocate responsibilities to other members and pursue a timetable in which work should be completed. Through language, group members are articulating their frustrations and exciting discoveries. Through language, students are entering discussion and meaningful interaction, which allows problem-solving, the discovery of solutions, and reflection on success or failure. Language is important in helping to shape and change a student's perspective on issues or knowledge, which helps promote cognitive development (Vygotsky, 1978).

The theory of constructivism helps explain differing teaching pedagogies, which include the practice of PBL. Pedagogies such as PBL encourage students to take on active learning techniques such as real-world problem-solving to generate knowledge. Constructivism helps explain how students create better knowledge through group work, self-investigation and further group conversation; and with further reflection, the students' understanding of the knowledge changes. Further knowledge successes are helped by teacher guidance by challenging students' preconceptions and guiding them to pursue further areas of research to redevelop misunderstandings (Applefield, Huber& Moallem, 2000). The teacher encourages the students to reflect on how the activity is helping them learn through questioning and reflecting strategies. Therefore, students undertake skills which would be classified as metacognitive skills, or learning to learn, meaning that the students become expert learners who become equipped with skills and tools which aid their future learning. The teacher plays an important part in the

construction of knowledge by providing support such as problem-solving activities that students can test their ideas against and draw conclusions from (Applefield, Huber& Moallem, 2000). Thus, the theory of constructivism helps explain how pedagogies such as PBL change students from being passive learners as experienced in a teacher-directed approach and are transformed into active learners in the learning process (Kemp, 2007). Instead of being guided by lectures, essays and examinations, students are actively constructing their own learning through an engaging means. Exploring the theory of constructivism helps to show that social collaboration is an essential element in helping deeper learning. The incorporation of PBL in the course content provides for the inclusion of reality-based activities and acceptance of real world issues to be considered in helping support students' cognitive development (D'Angelo et al., 2009).

The connection between PBL and the Vygotskian idea of constructivist scaffolding is that as students are learning content, skills and methods in collaborative groups, it is the collaborative interaction combined with the PBL activity that allows learning and skill development to occur. Students thereby make cognitive sense of what they are discussing. Misunderstandings are corrected in group discussions; solutions are challenged and accepted and justifications are given for why certain choices are accepted.

Scaffolding occurs in the group discussions as students explore ideas and solutions while the teacher provides further content knowledge as required by scaffolding with the provision of relevant resources, for example creating a product design. The teacher may provide differing scaffolding activities which make the PBL process more manageable according to the skill level of the students. A task requiring strong scaffolding by the teacher, such as giving students examples of quality work done by previous students, helps students learn how to do the PBL process. Exemplars which display excellent qualities of what is expected provide a clear guide, so that students learn how to construct arguments supported by adequate evidence. By means of relevant examples being given; students use additional scaffolding development to identify invalid claims, how to write a counter claim, how to explain an issue further. On reflection then, the group can progress further. Scaffolding is an on-going process at many stages of the PBL process, advancing from exemplars and resources from the teacher to group interactions. The scaffolding process relies on the teacher providing essential directed guidance to the students (Hmelo, 2007).

Since the theories have explained the foundations for PBL, an explanation of how different PBL is from other pedagogies needs to be given. PBL is different from teacher-directed teaching where the teacher is in continual control of the transmission of knowledge and there is very little student-to-student or student-to-teacher dialogue (Westwood, 2008). This pedagogy teaches knowledge explicitly, so as to avoid student misinterpretation and to ensure that they are learning knowledge accurately. With explicit teaching, this style is more suitable for subjects which require things being taught step by step such as woodwork, engineering and mathematical computation. With teacher-directed teaching, the aim is help students make improvements in academic achievement through a range of techniques such as essays, quizzes and end of term exams (Westwood, 2008). Other approaches in teacher-directed learning include rote learning and lecturing. Such approaches have led to students describing this approach to teaching and learning as boring and demotivating (Zwaagstra, Clifton & Long, 2010). There are key elements of PBL projects that are different from a traditional teacher-directed approach to teaching. Firstly, PBL projects focus students on developing critical thinking and problem-solving and self-management skills. These skills are not present in teacher-directed teaching, as most of the action is controlled by the teacher. Another feature of the PBL pedagogy is that the project has a meaningful question which challenges students to solve. Thus, students undertake a process which engages them in finding resources and applying research they discover in groups. In the teacher-directed approach, teachers are in control of presenting knowledge to the students and students are passive receivers of that knowledge.

Projects involve real-world situations and therefore can relate to students' personal interests and concerns, with the aim of making learning more engaging. By contrast, in teacher-directed learning, students are regularly asked to repeat back through rote learning their understanding of past or present content knowledge. Students have to make their own decisions for choosing a project and justify their decisions in PBL, but in teacher-directed, students are told directly by the teacher what is expected to be learnt and how reports are to reflect learnt knowledge. Reflection is an important part of the PBL project process and, at times, this reflection is graded on the students' views of their effectiveness of their inquiry, their work quality and how they overcame difficulties. Students are asked in their PBL project to present their project by explaining, displaying and presenting to people in or outside their classroom.

Another aspect of PBL that has been identified by Savery (2014) in contrast to teacher-directed is that the pedagogy is student-centred, rather than teacher-centred. The teacher is involved in facilitating students through guidance, advice and support but without direct scheduled lecturing. Students explore knowledge independently, and what is important to learn is not imposed upon them by the teacher. Knowledge development is therefore acquired through self-study, group research and critical reflection. One of the positive aspects of this pedagogy is the aim for students to become self-motivating, and that learning becomes more enjoyable (Abdalla & Gaffar, 2011).

The benefits of PBL approaches attributed to the student learning are that students not only improve their knowledge of a subject or issue but they develop skills of reflection, self-discipline and group negotiation. It is expected students also develop their communication skills because they are often working in small collaborative groups. Schmidt (1983) and Silberman (1996) argued that PBL pedagogy is beneficial to students because knowledge retention is greater due to social interaction. PBL is seen to offer learning that is more active and engaging, with the result that students obtain a deeper knowledge of the subjects. Schmidt considers knowledge retention to be lower if students learn through a teacher-directed pedagogy because students are unable to apply the knowledge in any practical form. Schmidt argues that as experiential pedagogies are linked directly to constructivism, as students make links with prior and present knowledge. Albanese and Mitchell (1993) concluded from their literature review of PBL that PBL students acquired more self-directed learning skills than the students in a traditionally based curriculum. A study conducted Klegeris and Hurren (2011) found students voicing their enjoyment of doing PBL projects because they liked the greater flexibility offered by the pedagogy and enjoyed presenting their research findings to their peers. Their research focused on evaluating students' perspectives of PBL when it was used as a supplement for supporting students studying undergraduate biochemistry classes. PBL was chosen to help to help students learn biochemical and physiological processes. The researchers used informal and formal surveys as well as monitoring student attendance to the PBL discussion sessions. They wished to understand how useful PBL was in a classroom setting of large classes which numbered between 45 and 85 students. Students are also given more flexibility in the resources they use for their projects, such as using computers, Internet, digital cameras and other

technological equipment. The desired result of using PBL in tertiary education is that students will be invigorated in their learning through a real-world, relevant pedagogy.

In this thesis, student voice needs to be introduced, as it is an important aspect of this thesis. One way to evaluate PBL is to use the participants' voice to gain an understanding of whether the pedagogy is being appreciated or disliked in UAE tertiary education. Evaluating the performance of a pedagogy is done by asking students and teachers what they think is successful about it and what frustrations they have with it. Their evaluations can be used to understand whether or not the pedagogy is successful in helping students learn Business and IT. Toshalis and Nakkula (2012) identified that student participation in evaluating how they are taught is important. They need to participate providing the student voice for improvements to the teaching programs which affect them directly and personally. They claimed that curriculum planners often made students feel unimportant, powerless, disengaged and alienated when implementing pedagogical changes in education. By taking account of student voices, motivation and engagement are likely to improve and reduce student alienation from their learning process.

2.5 Summary

The literature review has identified a number of studies which investigated student and teacher views on PBL pedagogy in terms of features which contrast PBL with teacher-directed approaches. This chapter consisted of four main sections: firstly, Section 2.1 and Section 2.2 presented the past research on student and teacher voices on PBL, which provided the foundation for the first and second research questions. The second section, Section 2.3 explained the theory of engagement which provided the basis for the third research question. The third section, 2.4 described the theories which support the conceptual framework (Figure 2.1) for this thesis.

This research is significant and important because it proposes to enhance an understanding of UAE student and expatriate teacher engagement with PBL. From their views, an evaluation can be garnered as to how well PBL is being implemented for HCT Business and IT courses. Chapter 3 follows with previous methodologies employed to investigate student and teacher attitudes towards PBL and the credibility for the methodology selected. It also outlines the procedures applied.

CHAPTER 3. METHODOLOGY

3.0 Overview

This research investigated Emirati students' perceptions of their learning experiences with PBL projects. A cross-section approach (a selection of students doing PBL projects as part of their internal assessment) was undertaken, and a mixed-method style of data gathering was utilised. Data collection tools were questionnaires, interviews with students and teachers and class observations. The data helped answer the first and second research questions, which asked about Emirati student and teacher views on how students responded to PBL. Section 3.1 outlines the rationale for the mixed method approach used. Section 3.2 presents past research which helped finalise the tools for this research. Section 3.2 also further explains the rationale for the mixed method approach. Section 3.3 outlines sample techniques that were available and why convenience sampling was used to choose participants for the research. The participants are identified in Section 3.4. Section 3.5 outlines the different tools used, giving justification for their use and explaining how the data were collected and analysed with each tool. The tools presented are questionnaires (3.5.1), interviews (3.5.5) and class observations (3.5.9). The validity and reliability of the mixed method approach is discussed in Section 3.6. Ethical considerations are stated in Section 3.7, and Section 3.8 summarises the chapter.

3.1 Rationale for a mixed-method approach

A mixed-method approach was applied with a pragmatic focus as a means to understand Emirati students' attitudes and behaviour toward PBL and their teachers' views of PBL. The research questions aimed to identify issues from the perspectives of the students and teachers. Selecting appropriate tools to help answer the questions was, therefore, important (Johns & Onwuegbuzie, 2004). This mixed method focus included both quantitative and qualitative aspects. The quantitative aspect involved administering a questionnaire to students. The qualitative aspect used the researcher's observations to describe Emirati students' engagement with PBL in their Business and IT courses (Spector, Merrill, Elen & Bishop, 2010) and interviews to gain a greater understanding of student and teacher views.

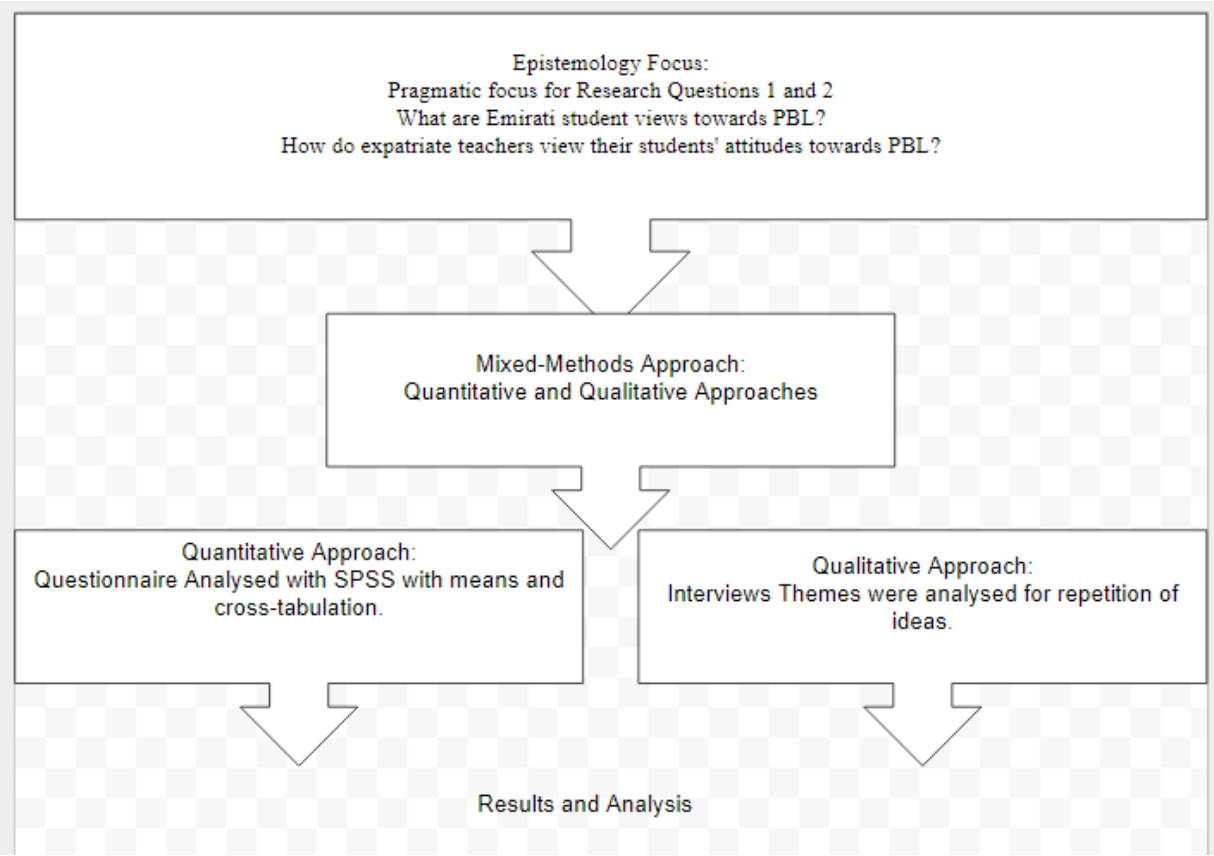

Figure 3.1. Mixed-method approach for Research Questions 1 and 2.

Teddlie and Yu (2007) suggest that the aim of sampling in quantitative research is to ensure that the sample taken will be a true representation of the overall population, with adequate size to reflect the population. The sample for the quantitative aspect required a reasonably large sample of students participating in PBL work for the questionnaire. Qualitative research requires a sample of a size adequate to help gather rich data for the purpose of answering research questions (Collins, Onwuegbuzie& Jiao, 2006; Crouch & McKenzie, 2006; Teddlie &Yu, 2007). What was required for the interviews were two samples: a sample of students out of those who had taken the questionnaire and a relatively small sample of teachers with knowledge of and experience in PBL pedagogy.

Since the research had to be undertaken within the limited time frame of two weeks, the questionnaires and interviews were conducted within the same hour, thereby reducing disturbance to the students' PBL in-class work. Class observations were undertaken at another pre-arranged time in the week. Class observations were undertaken at another pre-arranged time

in the week. Hackshaw (2008) suggests that in small studies, the data need to be interpreted carefully. To counteract the possibility that in the data yield might not be adequate, three different research tools were utilised. The researcher realised the importance of not drawing conclusions for the larger population from a relatively small sample. However, the design and data can be used to help design later studies which may reconfirm its results. It was judged that the methodology and sample were large enough to fulfil the aim of the thesis to provide reliable evidence of student and teacher voices in regard to PBL.

Therefore, as illustrated in Figure 3.1, the methodology decided by the researcher for this research included questionnaires, interviews and class observations. As discussed in Section 3.2 similar tools were used to gather data in this study as in previous studies collecting evidence from the student and teacher voices of their impressions of PBL. The concept map detailed in Figure 3.2 shows that questionnaires, interviews and class observations were used to elicit student and teacher voices providing insights into how effective this pedagogy is in two courses within the UAE higher education sector.

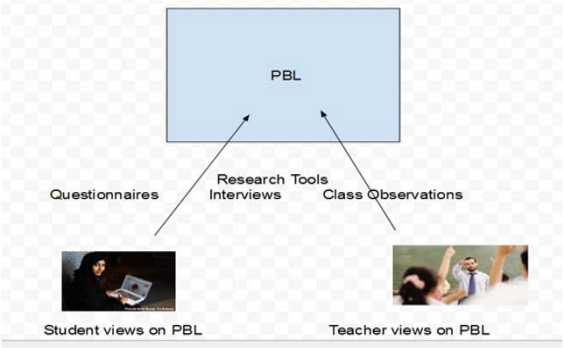

Figure 3.2: Concept map of the methodology

3.2 Past research which helped finalise the tools for this investigation

Previously, a range of methods were used to investigate Emirati student and expatriate teacher attitudes towards PBL (for summary, see Appendix L). The most frequent tools used by the 16 researchers were questionnaires, interviews and class observations (e.g., Crede & Kuncel, 2011; Gijbels, Van de Watering & Dochy, 2005; Luo, Zhoua, Luo, Songa & Liua, 2014;

Mendezabal, 2013; Trowler & Trowler, 2001). These methods have been validated by various researchers, including Almasoudi (2012); Crede and Kuncel (2011); Harris, Gavin, and Brown (2010); Mendezabal (2013); and Mustafa et al. (2014). Other methods have included use of teacher-directed control groups compared to PBL groups (Bas & Behyan, 2010; Selcuk, 2010), examination and group interviews (Sheridan, 2015), pre- and post-tests (Hamden et al., 2014), journal recording (Maseka, Yaminb & Aris, 2013) and observation alone (Mustafa, Alimoglu, Didar, Sarac, Alparslan, Ayse Karakas & Altintas, 2014). The strength of this study is that more than one method was utilised to evaluate the effectiveness of PBL. For efficiency, the researcher employed multiple tools in order to gather data quickly. This precluded the use of some approaches, such as preparing 'compare and contrast' groups or pre- and post-questionnaires. Utilisation of the three methods; namely, questionnaires, interviews and capturing the observations of students and teachers as they shared their perceptions about PBL pedagogy allowed me as researcher to gather the data in a relatively quick timeframe.

These methods were chosen because the application of a mixed methods approach meant that deeper and more multi-faceted understanding of student satisfaction with PBL could be gained. Questionnaires, on their own, would only give a numerical value for student opinions; but by using interviews, the researcher was able to listen to the students' personal insights on how they felt working within the PBL process. The researcher was able to listen to their responses to the pedagogy, in which they expressed satisfaction and frustration. Such reflections were not demonstrated strongly in the questionnaire alone. From a combined methods approach, the researcher could report more accurately to UAE educational planners what they need to take into account when incorporating PBL within UAE tertiary education. As the study's researcher, I was not involved in the teaching and selection of the classes observed.

3.3 Possible sampling techniques

Sampling techniques available for this research included the non-random sampling strategies of purposive sampling, quota sampling and convenience sampling. Purposive sampling was rejected because the research was not investigating *how* particular characteristics of participants affected their attitudes or behaviours. Quota sampling was rejected because it focuses on ensuring a representation of students based on a quota representing differing college

year levels or demographic characteristics, and there was insufficient time during the research phase to conduct such sampling. In addition, the researcher found only two courses using PBL, both with only first-year students. Therefore, the most suitable sampling strategy was deemed to be convenience sampling, in which respondents are selected because they are conveniently accessible to the researcher. Convenience sampling was also the least time-consuming method of selection. Students and teachers were chosen because they were participating in courses with PBL projects during the data gathering period. The courses were limited to eight classes with eight teachers. Because the courses were ongoing at the time of the data gathering period, participants' opinions about PBL were fresh and the researcher made the most of the research window opportunity.

3.4 Participants

The target population was chosen from Emirati students and expatriate teachers participating in PBL in the courses of the chosen tertiary education campus. A sample was chosen of students and teachers who were familiar with the PBL process, had current experience with PBL and would be able to give valuable perspectives on their perceptions of the pedagogy. The total campus population was 1195, which consisted of 611 students on the female campus and 584 students on the male campus (see Table 3.1). The total possible teacher sample was 46 expatriate teachers on the female campus and 16 on the male campus. The researcher found that there were only two courses undertaking PBL within their coursework: a Year 1 Business course (with 4 classes) and a Year 1 IT course (with 4 classes). These courses were nearing completion in the Spring quarter and students were completing their PBL projects as part of their internal assessment.

The students and teachers from these two courses possessed the characteristics that provided responses, which in turn, would answer the research questions. The students were undertaking an investigation PBL assessment which asked them to provide a range of possible solutions to support a local business they had to contact. The teachers included in this study represented a range of ages and nationalities from the Middle East, including one from Egypt, and two from Palestine. Another two teachers were from England. Three teachers were from the USA, one of whom was a Palestinian American. They ranged in age from 33 to 45 and had

taught in the host institution between 2 to 5 years. One teacher was female, while the other seven were males. The teachers had been teaching either Business or IT for two years or more, and had undertaken this PBL project assessment for the past two years. It is unknown if the teachers had previous PBL experience but they had been teaching this PBL assessment for the last three years in their IT/Business courses. That is, this research required a population of students and teachers who were familiar with the PBL process, had current experience with PBL and would be able to give valuable perspectives on their perceptions of the pedagogy.
. Since the researcher had to make sampling decisions based on limited available time and human resources, such as having only a three-week period to undertake the research with a limitation of eight teachers and eight classes, a compromise in conducting the research had to be made between the quantitative and qualitative samples for the investigation.

The researcher requested and gained written permission via correspondence from the campus director to conduct the investigation (Appendix J), and permission was granted (Appendix K). The research then began. Invitations for participants were sent by e-mail to all female (Appendix B) and male students (Appendix C) and to expatriate teachers (Appendix D) who were in PBL classes. Eight different teachers responded to the invitation. The researcher then visited the classes and explained the reasons for the research and again provided students with the letter of invitation, this time in paper format (Appendix B for female students and C for male students), and teachers were given a letter of invitation in paper form (Appendix D). The students selected were in the first year of their respective courses and were aged between 17 and 19. Their level of English was 5.0 based on their IELTS score. An Arabic translator was available if students required assistance in understanding of the aims of the research, the purpose of the consent form and the questionnaire. Forty-five male students and 129 female students answered the questionnaire, for a total of 174. The participants of this study were full time students and were undertaking on-campus courses in the early afternoon. Therefore, their level of motivation may have been different from studies such as by Wile and Shouppe (2005). Eighteen questionnaires were rejected due to contradictory answers between Statements 19 and 20 and 16 and 23, leaving a total of 156 questionnaires that were available to be analysed. The students chosen for the research are represented in Table 3.1 showing the proportions from the Business and IT disciplines.

Table 3.1.

Number of Students Who Participated with Each Tool and from Which Course

		Male Campus	Male Total		Female Campus					Female Total	Total Male and Female
	Business	IT		Business	Business	Business	IT	IT	IT		
Questionnaire	22	21	43	18	18	18	19	19	21	113	156 *
Interview		8 students 5th interview			6 students 3rd interview	5 students 4th Interview	6 students 1st interview	7 students 2nd interview	8 students 6th interview		40
Class Observations		1 +5				1+5	1+5	1+5	1+6		31

Note: * 174 answered the questionnaire. 18 were rejected. 156 were left to be analysed.

Table 3.1 represents an outline of the classes and the number of student participants who took part in the questionnaire, interviews and class observations. Students were first-year students who were undertaking PBL-based assessment as part of their coursework. Altogether, six interviews of student groups were undertaken, with a total of 40 interviewees. One IT male class group of eight members participated in the interviews. Five interviews of groups took place on the female campus: two interviews with Business students and three interviews with IT students. Five class observations took place out of the potential eight classes, with a total observation sample of 31 students. One observation took place on the male campus. This consisted of observation of an IT class with one individual and one group of five students. Four observations took place on the female campus. Two of these were in business classes and one in an IT class, each consisting of observing one individual and one group of five. Another observation in a female IT class was of one individual and one group of six students. A description of the project is in Appendix N.

The teachers of these same courses also participated, with their responses to the questionnaire and interviews used to answer the second research question, How do expatriate teachers view their students' attitudes towards PBL? The total number of teachers at the Abu Dhabi tertiary education institution was 106 from both campuses, but because PBL was being taught in only two subjects (Business and IT), only eight out of 10 possible teachers, who were using PBL assessment in their courses, responded to emails requesting participants. The teachers all utilised PBL in their classes of Business or IT.

Table 3.2:

Number of Teacher Participants

Teachers			
Business	IT	Male	Female
6	2	7	1

Total = 8

The teacher participants were chosen to fit the criterion of "expert sampling", described by Singh (2007) as a valuable method in which the researcher can gain knowledge from experts. In this investigation, the experts were expatriate teachers using PBL projects in their classes.

The teachers were teaching in a Content-Based Teaching (CBT) environment, with the support of PBL to help with the learning experiences of their students. They were given a questionnaire to complete while the students completed their questionnaire during class. An interview time was arranged and six interviews were completed when the teachers were available. These occurred in classrooms outside teaching the course, at times when a face-to-face interview could take place in isolation. The teachers could not be seen as CBT or PBL experts, but they were asked by their institution to include a PBL component in their courses, had been using PBL and were thus knowledgeable about PBL, helping to ensure the reliability of the questionnaire data from the teachers. It must be noted that the disproportion of female (129) student respondents to males (45) was likely to influence the outcomes of this study. Also, the sample of eight teachers was small. Having a small number of respondents of males and teachers impacted the data providing a smaller voice of the groups. A larger population of females provided data with greater generalisability to Higher Education female students than to males.

3.5 Data collection and analysis procedures for the questionnaire, interviews and class observations

This section outlines each method used. Justification is given at the start of each method and then the way it was used during the data-gathering period is outlined. Lastly, the analysis procedure of the data gathered from each method is presented.

3.5.1 Questionnaire justification

Questionnaires are important tools in assessing respondent attitudes to concepts such as student engagement and course pedagogy (Crocker & Algina, 2008; Fraenkel & Wallen, 1996). The first and second research questions focused on eliciting student and teacher voices on what they think about PBL pedagogy, and the questionnaire was one tool that could provide information to answer these questions. The questionnaire was adapted from research

done by Gurpinar, Senol and Aktekin (2009) and Shamsan and Syed (2009). Gurpinar et al. (2009) investigated 153 tutors and 170 first-year medical students from a Turkish university to understand their opinions of PBL. Shamsan and Syed (2009) used the Student Course Experience Questionnaire (SCEQ) to evaluate the opinions of Saudi medical students on the effectiveness and implementation of PBL. Their questionnaire provided themes and suggestions used in this thesis questionnaire, such as questions on the motivation for working in PBL and the difficulty of PBL.

The student questionnaire involved student self-reported views of various aspects of PBL. The questionnaire was general and not subject-specific for Business or IT. Arguments for using questionnaires are that they allow the researcher to collect data on students' subjective perceptions, and they are relatively easy to administer in classroom settings. However, one concern with self-report questionnaires is that students may not answer honestly, and thus the results may not reflect their true opinion. The questionnaires were used as both student and teacher self-reporting tools to provide an understanding of their respective perspectives on the issues raised in statements about PBL. Face-to-face interviews were used to follow up the questionnaires, providing an additional data-collection instrument.

3.5.2 Questionnaire procedure for students and teachers

Prior to any data being collected, students were given a consent letter to sign (Appendix E). All eight classes of students who volunteered to participate completed the Student PBL Evaluation Questionnaire (see Appendix H). Following their consent to participate, responses were collected systematically. Within the two-hour research process, students responded to 12 positive and 12 negative closed statements by using a Likert scale ranging from 1 (very strongly disagree) to 6 (very strongly agree). The 25-statement questionnaire focused on rating the respondents' attitudes and views on the effects of PBL on their learning, and what they liked and disliked about PBL. The scale of Likert responses was used to compensate for the students' English proficiency, and so as to allow completion with minimum effort and to enable a quantitative measure of the collected data for descriptive statistical analysis. Teachers were given a similar questionnaire (See Appendix I), eliciting their views of their students' reactions to PBL.

3.5.3 Questionnaire analysis

Two types of analysis were carried out on the data collected from the questionnaires.

First, the total means were calculated for responses to each questionnaire statement. A second analysis required the researcher to choose similarly themed statements, and cross-tabulate them using Statistical Package for the Social Science (SPSS) to compare the results. The cross-tabulated results were then compared to the total mean results (from SPSS calculation) as a test of validity. These results were then tabulated and are presented in Chapter 4. The frequency occurrences were presented in tables. Statements were grouped in pairs of opposites to show how the students were thinking on a particular issue; for example, statements 19 and 20 were contrasted to gain a respondent's feeling about being motivated when using PBL. To further validate the data, cross-tabulations of the same pairs of statements were undertaken on frequency counts for responses of agree, disagree and no opinion. The cross-tabulations gave indications of the total group beliefs on a range of statements and scenarios. Fifty-four students were excluded from the analysed questionnaire results because it was found that their answers were directly contradictory on paired statements. This particularly related to those students who gave directly opposite answers in response to answering three sets of statements when they were cross-tabulated: questions 19 vs. 20, 8 vs. 15 and 16 vs. 23. If the responses of this group of 54 students had been included in the pool of data, it may have confused or biased the results; however, it was found that even with the exclusion of those 54 students, the data still reflected a similar result as when all 174 responses were included.

3.5.4 Questionnaire validity and reliability

The questionnaire was examined for several types of validity. Face validity was described by Brinkman (2009) as being the quality of a questionnaire's statements measuring what they were intended to measure; in this case, all statements focused on the PBL pedagogy and the options for responding (the Likert scale) were appropriate. Content validity of the questionnaire was maintained by ensuring that the themes that each statement focused on were an issue for PBL, such as items asking whether PBL was time consuming. To ensure criterion validity, the researcher undertook an investigation into a number of PBL-attitude questionnaires to give guidance in what questions were asked and what themes were researched in the past. This investigation into past questionnaires helped prepare the questions for this thesis questionnaire. The reliability of the questionnaire was supported by similar results being obtained between the two groups of respondents, students and teachers. This similarity of results also strengthened the retest reliability of the questionnaire. In addition, themes asked within the statements were consistent with PBL, which strengthened

their accuracy in being able to reflect participants' perceptions of PBL.

3.5.5 Interview justification

Interviews have been used by researchers such as Boaler (1998) and Dahlgren and Dahlgren (2002) to collect qualitative data to identify students' insights into the effectiveness of PBL. Research by Wade (2013) and Maseka, Yaminb and Aris (2013) confirm that semi-structured interviews are a reliable method for collecting data when studying students' attitudes towards a particular pedagogy. Such interviews consist of key questions that investigate the areas to be explored. In contrast to structured interviews, the less structured approach is more relaxed and allows the interviewer to pursue an idea or response and the participants to elaborate on the information they have provided. This is important given the interview purpose of exploring the views, experiences, beliefs and/or motivations of individuals on specific matters. The open-ended and unstructured manner of semi-structured interviews is most appropriate where little is already known, as in the case of Emirati students and their insights into PBL (Turner & Meyer, 2000). However, interviews are not without problems: the interviewer's presence and bias can impact on the detail and type of response a participant makes, as well as create issues regarding reliability (stability and consistency) and the validity of interview findings (McCaslin & Good, 1996). The interview responses helped to validate and further expand the data collected from the questionnaires. Interviews enabled students and teachers to voice what motivated them in their PBL projects and to give their insights into PBL. The interview questions were based on the statements in the questionnaire. Students were asked questions as displayed in Appendix I, while teachers were asked questions as stated in Appendix H. Since this research took a mixed method approach, the semi-structured interviews were another suitable method for gathering the Emirati students' viewpoints of PBL.

3.5.6 Interview procedure for students and teachers

Interviews were carried out with 43 students (8 males, 35 females) and six teachers using questions from Appendices F and G. Those students from classes that participated in the questionnaire were invited to participate in the interviews. After the class, had completed the questionnaire, the researcher asked which students would like to participate in an interview with the researcher, while the rest of the class continued working on their projects. Frey and Fontana (1991) acknowledged that group interviews when part of the research process are undertaken in either a formal or an informal setting. The collected data is

instrumental and factual, adding insights to an interpretation of events. The sampling method selected was non-random calling for volunteers who were willing to participate in an activity and an interview. The data that can be collected can also be instrumental and factual and that it can add insights in how something is being interpreted. The sampling method though, a non-random approach, asked for volunteers who were willing to participate in an activity in an interview. A student focus group approach was chosen instead of one-on-one interviews, because of the number of female participants. For cultural and religious reasons, one-on-one interviews with a female were deemed to be inappropriate. Focus groups for the male and female students were conducted separately. The group of self-selected participants and the researcher withdrew to an adjoining vacant room where students were settled and informed about the purpose of the focus group and the questions. Students were unwilling to be audio recorded in their interviews, so the researcher took field notes during the interviews. Each interview lasted about 30 minutes. After interview completion, the researcher and students returned to the classroom. The field notes were later transcribed by the researcher. The researcher interviewed a total of six groups, five female groups and one male group. These self-selected participants had differing perspectives on PBL, with some students being positive while others were negative towards the pedagogy.

When preparing for the teacher interviews, teachers who had PBL assessment in their classes, from the Business and IT departments were emailed and invited to participate individually in a 30-minute interview. A total of eight teachers responded to allow the questionnaire in their classes but only six participated in the interviews. These six teachers were interviewed about their perspectives on student responses to PBL and the realities of project assignments within a UAE tertiary education institution in order to provide more comprehensive information. Each interview was scheduled around the availability and convenience of the teacher. Again, like the students, the teachers were unwilling to be recorded on an audio recorder, so field notes were taken during the interviews and were later transcribed into paraphrased notes.

3.5.7 Interview analysis

Thematic analysis was used to analyse the data collected in both the student and teacher semi-structured interviews, and prominent themes found in the questionnaire were recorded: attitudes towards group work, time management and the use of English language in PBL projects. The advantage of thematic analysis is it allows large volumes of data to be

organised and summarised (Mills, Durepos & Wiebe, 2010). The interview data was quantified by the researcher reading, identifying and colour coding different themes. For example, if the student was struggling with time, the text was coloured yellow; then if the same issue was mentioned by another student, this new comment too was coloured yellow. Then these yellow sections were later identified together and calculated as a total. Two of the most important questions the researcher wanted answered during the interviews were: "What do you like about PBL?" and: "What don't you like about PBL?" Students' responses to these questions provided data about how they felt about PBL pedagogy. To code the transcribed student and teacher paraphrased notes, a first reading was undertaken to gather ideas of what the students and teachers were stating; then when similar issues were identified such as struggles with time management or happiness with teamwork, these were colour coded. This style of coding is what Charmaz (2006) would define as focused coding, which she explains as: "a focused, selective phase that uses the most significant or frequent initial codes to sort, synthesize, integrate, and organize large amounts of data" (p. 46), which enables the researcher to discern underlying patterns in the data (Charmaz, 2006). Although the questionnaire was not repeated to examine its reliability, the semi-structured interview was used to help ensure the reliability of the mixed method data collection process for this thesis. Semi-structured interviews were carried out to give students and teachers the opportunity to talk in detail and depth about PBL and their experiences with the pedagogy. The participants' comments about their experiences with PBL revealed what they believed to be true, because they were able to speak for themselves with no direction from the interviewer. The students and teachers gave similar answers to the questions used in the interviews, which helps strengthen the reliability of this research.

3.5.8 Interview validity

As highlighted by Abdullah (2001), it is a challenge to apply the concepts of validity and reliability to semi-structured interviews because the measurement device is the researcher. As Davies and Dodd (2002) suggest, the concepts of reliability and validity need to be reframed for qualitative research instruments such as semi-structured interviews. To gain an understanding of the data collected, the researcher used a simple codification system on all the interview transcripts, where positive and negative responses themes were highlighted and rated on being negative and positive to PBL (Parker & Mobey, 2004). This system is based on a constant comparative method that requires data to be reviewed line-by-line in detail; and when a concept is apparent, a code is assigned to catalogue that concept,

with the context in which it occurred being preserved as well (Curry, Nembhard & Bradley, 2009). To help ensure stronger internal validity, the coding of the interview transcripts was discussed with another lecturer at the institution, which helped confirm and validate the results and interpretations by the researcher. The mixed method approach allowed for quantifiable comparisons of the participants' attitudes and opinions and the researcher's classroom observations. This, in turn, enabled the discovery of certain findings which point directly to the situation of how students and teachers felt about PBL. These results were then able to be linked to the literature, which helped ensure the validity of the mixed method framework (Parker & Mobey, 2004, p. 24). As for the results, the researcher cannot generalise the findings to all Business and IT projects; however, results may lead to a better understanding of the issues that arise and affect students' satisfaction with learning through PBL. It is acknowledged that the student population of female students exceeded the male students. There is therefore a female gender bias of views provided in the interviews.

3.5.9 Observation justification

Gender is one factor that is considered in the third research question for this research, because gender is an important consideration within UAE education and education policy. Gender had an influence partly because of the unequal balance of student numbers within UAE tertiary education institutions, where female students are represented in larger numbers than males. This thesis used the level of participation of female and male Emirati students as an indication of how strongly gender influences levels of participation, and to what degree students appreciate PBL projects. This is why classroom observations were used, which was done to help to develop an understanding the influence of gender on the level of engagement students had with their projects. I used the classroom observation checklist, provided by the Behavioural Observation of Students in School (BOSS), to evaluate a student's level of engagement in his or her observed behaviour (Pearsons, 2016). I felt that this checklist and its descriptions were suitable for use in rating the level of engagement when conducting classroom observations, as the scale descriptions were very detailed.

The answer to the third research question: "What are the levels of engagement of male and female Emirati students with their PBL projects?" was dependent upon the students' observable behaviour. Therefore, the researcher observed a student's behaviour and compared it against the checklist every five minutes (Appendix A) to interpret what the student was doing, in terms of whether it was on-task or off-task. The researcher only focused

on recording students' observed behaviour, with group conversations and the teacher being excluded. The researcher chose a random student in the classroom from one group and then another group of students, and then recorded their level of engagement over a 50-minute period. Graphs were constructed to create a visual representation of the student and group levels of engagement (see Chapter 4).

The researcher-observer recorded the observations on paper as a means of increasing the validity of the observation data. These were cross-checked in discussion with a critical colleague to confirm the nature of the recorded behaviours. One limitation with using the observation tool was that I was the sole observer, and therefore any bias on judging the level of engagement could have influenced the results. The potential effect of observer bias would have been reduced had I used multiple observers. The data would be more reliable if multiple observers had arrived at similar conclusions about the observable behaviour. I only had a two-week window to make the observations when the classes were occurring, and therefore I had to rely on myself as the researcher-observer for data gathering for the third research question. Another limitation was the possible influence of the researcher on student behaviour (Hissong, Lape & Bailey (2007). To combat this possible influence, I, attempted to ensure that my behaviour was circumspect and did not interfere with what the students were doing at the time. I also strove to remain open minded and receptive about observed behaviour when using the observation checklist tool as Mangal and Mangal (2013) recommend.

3.5.10 Observation background

There are a number of ways of measuring the level of student engagement Chapman (2005). Students writing in their own journals is a common method, but other methods include researchers using checklists and rating scales, observations, work sample analyses and case studies. Research which has used class observations to investigate a range of educational issues includes Parn (2006); Fredricks, McColskey, Meli, Montrosse, Mordica, and Mooney (2011); and Volpe, Diperna, Hintze, and Shapiro (2005). Fredricks and McColskey (2012) recognised that observation methods have been used at both the individual and classroom level to research students' level of engagement. Volpe et al. (2005) recorded both individual and group engagement levels in class. As suggested by these researchers, having a pre-organised checklist helps with ensuring the recorded data is consistent and fair. That is why I chose to use a reliable and accurate checklist provided by the BOSS

engagement observation. According to the checklist, a student's engagement is not to be described only in regard to its presence or absence, but also in terms of its degree and quality. Therefore, the degree and quality of engagement was used as a variable in this research to help answer the third research question. This checklist helped provide a clear focus for observing individual students and groups of students, drawing the researcher to record specific aspects of individuals' and groups' engagement behaviour with their projects. The checklist provided an easy way to rate student behaviour, and was able to be adapted to meet the researcher's needs (Richards, 2011).

3.5.11 Observation procedure

I undertook research into how to best measure a student's level of engagement and concluded that the Schlechty Level of Engagement scale would be a satisfactory scale allowing me to evaluate and measure level of engagement. This scale is represented in Figure 4.1. The engagement scale defined a student's behaviour based on what activity he or she was doing in the classroom. It includes a range of scaled ratings with "on-task behaviour" being rated on the scale of 4 to 6. A 4 rating means the student is passively engaged, while a 6 reflects the student's behaviour as being totally on-task and not off-task at all. The scale uses the ratings of 0 to 3 to describe a student's off-task behaviour, where 0 rates a student being totally off-task, such as being asleep at their desk, to 3 where students could be off-task on their mobile phones. I used the same classes that had previously undertaken the questionnaire and interviews to undertake observations when the classes were doing their weekly in-class one-hour PBL assignment. Once the teacher had agreed to a time I could visit and had informed the class that a class observation would be taking place, I prepared my observation for the agreed period. Class observations started five minutes into the class time, when groups of students were undertaking their class project. The schedule for the observations is shown in Table 3.3.

Class consent had been previously obtained during the questionnaire tool phase, as represented in Appendix E. Five different individual students and five different groups of five or six students were observed for the observation instrument. If the student or students were totally focused on their project during a five-minute period, they were given a 5 or a 6 rating. If the student or students were off-task, they were given a rating of 2 or 3, depending on the criteria of the description the score was based on as indicated in the scale checklist in Figure 4.1. The procedure for undertaking the observations was that firstly. One group and one

individual from another group were randomly selected from all the PBL class groups in the classroom. Then observations were taken and recorded every five minutes for the observed group and individual during 50-minute class period.

Table 3.3:
Schedule of Class Observations During the Two-week Data Gathering Period

	Sunday	Monday	Tuesday	Wednesday	Thursday
Week 1					
Campus				Female	
Observation				IT	
Week 2					
Campus	Female	Female	Female	Male	
Observation	Business.	Business	Business	IT	

3.5.12 Observation analysis

The predetermined engagement behaviour BOSS checklist provided a key on which the observed individual's and group's behaviour could be rated easily and effectively. This allowed the recorded observed behaviours to be quantified and represented in graph form as presented in Chapter 4.

3.5.13 Observation validity

To ensure stronger validity in the use of classroom observations, I firstly considered the issue of researcher bias and how this might affect student behaviour. Therefore, in observing students, I ensured that I was far from the selected group and individual to reduce the possibility of affecting them while observing their behaviour. Also, I made myself aware of how my personal experiences, expectations or judgments could affect how I rated the students' behaviour and took care to eliminate any such influences and to be open and receptive in my observations. Further, more than one observation was completed in different classes, in total five sets of observations were completed. Having multiple observations allowed the researcher to determine if there was replication of similar observations of the students' behaviour. Replication of observations also allowed me to observe the same gender group within the same institution in the course subjects of Business or IT.

One way that validity and reliability were strengthened was that the researcher briefly interviewed the individual or group that was observed after the class period to learn whether the observations which were recorded were in basic agreement with those acknowledged by the individuals and groups being observed (Zohrabi, 2013). This procedure allowed the researcher to confirm the validity of the results. The researcher would have rejected any observations which could not be confirmed by the respondents (Zohrabi, 2013).

3.6 Summary of the validity/reliability of mixed method approach

Using a mixed method approach improved the validity of this research more than if a questionnaire alone had been used to research the students' attitudes towards PBL. Therefore, to ensure the validity, the following steps were undertaken. Firstly, the questionnaire had to have face validity. Face validity for a questionnaire, as described by Brinkman (2009), consists of the questionnaire's statements measuring what they were intended to measure; in this case, all statements focused on the PBL pedagogy, and the options for responding (Likert scale) were appropriate. Questionnaire reliability was supported by similar results being obtained between two groups of respondents: students and teachers. Another way questionnaire reliability was supported was that the issues asked within the questionnaire statements were consistent with issues which arise in PBL, such as group and time-management issues.

As highlighted by Abdullah (2001), it is a challenge to apply the concepts of validity and reliability to semi-structured interviews because the measurement device is the researcher. Davies and Dodd (2002) suggest that the concepts of reliability and validity need to be reframed for qualitative research such as semi-structured interviews. To gain an understanding of the data collected, the researcher used a simple codification system on all the interview transcripts and the themes that were highlighted for both negative and positive responses to PBL (Parker & Mobey, 2004). This method is based on a constant comparative method that requires data to be reviewed line-by-line in detail, and when a concept is apparent, a code is assigned to catalogue that concept, and the context in which it occurred is also preserved (Curry, Nembhard & Bradley, 2009). To help ensure stronger internal validity, the coding of the interview transcripts was discussed with another lecturer at the institution, confirming the results and interpretations by the researcher.

The third data collection method was in-class observations; to help ensure strong

validity, the researcher considered the issues that affect the validity of data collected with this method. To minimise the influence of the researcher's presence on the participants' behaviour, the observations were made and recorded during the time normally allocated to students for research. One thing that could affect the collection of observed behaviour is personal bias through the researcher allowing personal opinions affect the selecting or critiquing the behaviour of an individual or group. When behaviour is being recorded, this personal bias could lead the researcher to focus on particular behaviour patterns and exclude others that are infrequent or rare. Therefore, the researcher was especially cognisant of the possibility of such biases and took care to observe students' behaviour with an open mind, with sensitivity and as accurately as possible. Lastly, the researcher needed to be aware that personal experiences, expectations or judgments could influence perceptions of what was being witnessed during an observation and might affect what was being recorded. Here, too, the researcher took care to not allow preconceived notions affect his observations. Furthermore, to help ensure the validity of the observation data, more than one observation was completed, although in different classes, and this replication allowed the researcher to observe the same gender group within the same institution within the subjects of Business and IT.

With this analysis, it can be argued that the three data collection methods used to correlate data from Emirati students and teachers provided an accurate picture of the participants' attitudes and perceptions about PBL as a pedagogy within tertiary education. To avoid invalidity, the researcher collected data through three methods: questionnaires, interviews and classroom observations; as having a variety of sources seeks to produce valid, unbiased and strong results. This mixed-method approach to collection of information from a variety of participants gave similar results, as reported in Chapter 4, thereby helping to confirm the validity of the data. The mixed-method approach provided views of Emirati students and their expatriate teachers on using PBL in their Business/IT classes. The insights provided a sectional picture of how the pedagogy was being received by students in two courses in the host UAE higher education institution.

With this analysis, it can be argued that the three methods used to collect data from Emirati students and teachers provided an accurate picture of the participants' feelings about PBL as a pedagogy within tertiary education. This is because using such a triangulation approach helps to strengthen the validity of evaluation ta and findings, which is supported by Zohrabi

(2013, p. 256), who states: " It is believed that using different types of procedures for collecting data and obtaining that information through different sources (learners, teachers, program staff, etc.) can augment the validity and reliability of the data and their interpretation."

Validity focuses on the idea that the methods used in the research will obtain the data accurately (Creswell, 2003, 2009). Accordingly, the questionnaire and interviews were designed and utilised in such a way that the researcher was able to understand students' and teachers' attitudes towards PBL. Another way in which validity was ensured for this research was that the researcher chose only students and teachers who were familiar with PBL, so that their answers to the questionnaire and interviews were based on firsthand experience. Secondly, validity was maintained by ensuring that each statement in the questionnaire referred specifically to PBL. Thirdly, during the interviews, each student and teacher was only interviewed about PBL projects and no other subject area. Lastly, the validity for this research was strengthened by use of a multi-tool approach to measure student and teacher attitudes.

Validity was endorsed further by the use of following strategies:

- Each statement on the questionnaire focused on one particular theme relating to PBL (e.g., a focus on time management in Statement 25);
- Certain statements were used to cross-check a student's attitude, such as with Statement 19 vs. Statement 23;
- The semi-structured interview questions were based on statements from the questionnaire, so similar themes were discussed, e.g., time management; and
- Class observations were used to cross-check to ascertain at what level students were engaged with their PBL projects.

The study's validity was also strengthened by the sampling technique used, in that the student sample included only those who were participating in PBL. In the institution, only Business and IT courses were found to use PBL. Permission was then sought for the participation of students and teachers in these courses. There was a smaller sample of male students and expatriate teachers compared to the larger female student sample; however, both of the former groups were current participants of PBL when the data gathering took place.

The use of 'convenience sampling' means that the researcher was able to use those volunteers who had experience of and attitudes towards the PBL pedagogy and were willing to participate. Because of the non-random participant selection method, findings for the PBL students and teachers cannot be generalised to the larger population of Emirati tertiary education PBL students and teachers. The findings from these groups can only be applied to the groups themselves. However, the results may be suggestive for the larger population of PBL students in the UAE tertiary education system. The small male student and teacher sample size was a necessity as few courses were offering PBL components at the time of the investigation. Therefore, though not large, the sample included a large portion of the PBL students and teachers from the institution where the research took place. The use of three methods of collecting data from this sample supports the validity of the research as representing the attitudes and opinions of the PBL students and teachers examined, and data collected by the same tools are likely to be similar if gathered from UAE higher-education PBL students and teachers in similar situations. Therefore, the results can be interpreted as being valid for both groups.

3.7 Ethical considerations

The researcher took steps to protect participants involved in this research, recognising that issues of confidentiality and anonymity are important factors to address (Wiles, Crow, Heath & Charles, 2008). Firstly, the researcher sought the students' and teachers' agreement to participate through an information letter and consent letter. To gain voluntary cooperation of students, the researcher invited students to participate in the surveys via classroom visits conducted one week before the data gathering was due to commence. Students were informed that their participation was completely optional and confidential, and that their decision would not influence their grade in the class. The students and teachers were informed that the thesis would be made available to the Higher Colleges of Technology after its completion. They were also informed that their participation had the potential to improve faculty responsiveness to student perspectives on the new pedagogy.

The participants were asked to complete questionnaires anonymously to protect their confidentiality. When the questionnaires were completed, a number was assigned to each form, ensuring the student and teacher participants had anonymity and their information was kept confidential. Confidentiality was also assured in the interviews and observations.

Participants were identified only by number, and no names or identifying information was used in recording interviews or observations.

3.8 Summary

This chapter began with an explanation of the rationale for using a mixed method approach in Section 3.1. In Section 3.2, past research on student and teacher attitudes towards PBL was examined to help justify why questionnaires, interviews and observations were used to investigate student and teacher attitudes and opinions about PBL. Section 3.3 outlined what possible sampling techniques were available, and a description of the respondents was given in Section 3.4. The data collection procedure for the questionnaire, interview and class observations was stated in Section 3.5, followed by a summary of the validity and reliability issues that have to be considered for the mixed method approach in Section 3.6. Lastly, the ethical considerations were presented in Section 3.7.

The mixed method methodology was used to explore the phenomenon of student and teacher attitudes about PBL. Emphasis was placed on quantitative and qualitative approaches to investigate student and teacher attitudes towards PBL. The method was adopted to provide clarity regarding factors which affect participation in and expectations of PBL for UAE students in tertiary education. This information can be made available so as to give a better understanding of student and teacher satisfaction with PBL instruction as part of the new pedagogy approaches used in UAE tertiary education. Using a range of tools allowed this research to have stronger validity and reliability (Zohrabi, 2013). In addition, the use of three types of research tools—questionnaires, interviews and observations—provided similar results, which helped ensure that the collected data was valid

CHAPTER 4: RESULTS

4.0 Overview

This chapter is organised by presenting the data for each research question. Section 4.1 presents the student questionnaire and interview data for the first research question:

RQ 1: What attitudes do Emirati Business and IT students have towards PBL?

Section 4.2 presents data from the teacher questionnaire and interviews on the second research question:

RQ.2: How do Business and IT expatriate teachers view their students' attitudes towards PBL?

Section 4.3 provides data from the class observation instrument in response to the third research question:

RQ.3: What are the levels of engagement of male and female Emirati students with their PBL projects?

The results highlight the differences in male and female student levels of engagement.

4.1 Data and findings from the first research question: *What attitudes do Emirati Business and IT students have towards PBL?*

The following results help address the first research question;

RQ 1: What attitudes do Emirati Business and IT students have towards PBL?

Section 4.1.1 details the student questionnaire, with three types of data: the total raw scores, a comparison between female and male Emirati students and a comparison between the Business and IT classes. Alongside the questionnaire data, student interview statements are given in support of the questionnaire responses.

4.1.1 Student questionnaire and interviews

The following themes were identified from both the student questionnaires and interviews:

Students found projects interesting and increased their motivation. PBL as a pedagogy was a satisfying method to help their learning and that they could see connections in what they were learning to the project; PBL improved their communication skills and time management skills. Students appreciated group work and thought that their English was adequate for projects. By contrast students also desired more support for using resources when they did not know where to start projects. They lacked background experience in PBL A minority disliked group work, and most wanted more time for the project which some found frustrating and difficult. They were affected by demands of the UAE culture.

- **Students found projects interesting,**

Seventy-four percent of the total of the 156 respondents reported high agreement that projects were interesting. (85 females out of 113 or75%) and 31 males (out of 43, 31%) recorded high levels of interests when doing the PBL assessment approach. In both Business and IT classes, (72% and 76% respectively, students enjoyed PBL project assessment compared to a small group of 10% Business and 10%IT students who preferred a traditional class environment. Data from the three areas suggest that students of both genders and courses were highly satisfied with PBL projects as a form of assessment in their coursework.

Students explained in the interviews they found PBL more interesting. Students 17, 18, 24, and 28 have recognised it is more interesting to learn through other styles of learning such as a traditional lecture based class, one female student commented that she was finding projects interesting because she felt doing projects was more fun: "Projects are fun, I like doing them," (Student 6, student interview, May 15, 2012). In the interview topic analysis, there were 13 instances where students mentioned that projects were fun and stimulating (see Appendix P). In the interviews, of the Business students who were asked what they liked about PBL, one said learning was better for her through PBL, stating: "I think I am learning (a) lot more than just sitting in class," (Student 17, student interview, May 23, 2012).

- **PBL as a pedagogy was a satisfying method to help with learning.**

A total of 121 or 77% of respondents to the questionnaire reported they were highly satisfied in how they were learning when undertaking their PBL projects (90/113 females and 31/43 males). It was clear that neither gender preferred textbooks over PBL projects, as both genders preferred to participate in PBL project assessment. Both Business (76%) and IT (70%), found PBL project assessment in their coursework more satisfying than learning from their assigned course book. The approval for having PBL included in either course can be seen from the 116 students (84 females,74% and 32 males, 86%) who on Statement 14 reported they wanted to have ('desired') more PBL projects included in their Business or IT courses. That is, 59 Business students, 77% and 57 IT students, 71% agreed strongly that the inclusion of PBL projects in their coursework was something they desired.

When Emirati Business and IT students were questioned about how satisfied they were about the PBL as a learning method as asked in Statement 23, the results were less clearly defined. Seventy-eight students, (50%) felt satisfied learning through their PBL project (that is 56 females, 49% and 11 males, 35% whereas, 46 students (29%) disagreed and felt dissatisfied with the pedagogy and may have preferred to a more lecture-based class. Another similar result is where 40 (40%) IT students and 38 (50%) Business students felt satisfied learning through a PBL project.

- **Projects increased motivation**

Two statements asked the students about how PBL improved their motivation. On Statement 4, students reported a high level of satisfaction with their levels of motivation when undertaking PBL projects. 130 students (83%) out of the total of 156 respondents, (93/113 females or 73% and males (37/43 or 86%) and across faculties 60 Business and 70 IT students agreed with a high rating. Nearly 80% of Business students and 87 % of IT students agreed that their motivation had surged because of the PBL assessment projects. On Statement 22, 119 students (76%), 34/43 males (79%) and 85/113 females (75%) responded that projects motivated them. In the interviews, they elaborated that projects helped them to learn more. Further confirmation from the students of each course shows that they felt their levels of motivation increased due to projects, as indicated by the 63 (82%) Business students and 56 (70%) IT students.

Table 4.1
Total percentage of student scores for each statement

	Agree	Disagree	No Opinion
Statement 1; Projects help me apply my knowledge.	148(94.9%)	6 (3.8%)	2 (1.3%)
Statement 2: Projects are more interesting than traditional classrooms.	116(74.4%)	20 9(12.8%)	20 (12.8%)
Statement 3: Projects improve my communication and time management skills.	130(83.3%)	5(3.2%)	21(13.5%)
Statement 4: Projects increase my motivation.	139(83.3%)	5 (3.2%)	21(13.5)
Statement 5: Projects are more satisfying than studying from a textbook	121(77.6%)	14(9%)	20(12.8%)
Statement 6: Projects are frustrating.	85(54.5%)	33(21.2%)	38(24.4%)
Statement 7: I find during a project I struggle with many problems.	98(62.8%)	23(14.7%)	33(21.2%)-2
Statement 8: I participate better in projects than working on my own.	146(93.6%)	2(1.3%)	8(5.1%)
Statement 9: I like the freedom and flexibility of projects.	129(82.7%)	7(4.5%)	20(12.8%)
Statement 10: I believe PBL gives more factual knowledge of learning than in a normal classroom.	111(71.2%)	11(7.1%)	34(21.2%)
Statement 11: Projects help me understand the subject more	106(67.9%)	6(3.8%)	40(25.6%)-4
Statement 12: I improve in my reflecting during a project.	126(80.8%)	6(3.2%)	25(16%)
Statement 13: Teamwork and interpersonal skills during a project are better than a traditional class.	125(80.1%)	8(5.1%)	23(14.7%)
Statement 14: I desire more projects to be organised in my class work.	116 74.4%)	7(4.5%)	33(21.2%)
Statement 15: I do not learn a lot from projects.	32(20.5%)	104(66.7%)	19(12.2%)-1
Statement 16: I feel projects are a satisfying way to learn	26(80.8%)	8(5.1%)	21(13.5%)-1
Statement 17: Projects are difficult due to the independent aspect of PBL.	75(48.1%)	40(25.6%)	4025.6%)
Statement 18: I respond negatively when I find out I am doing a project.	75(48.1%)	40(25.6%)	40(25.6%)-1
Statement 19; I gain a lot from projects.	130(83.3%)	15(9.6%)	11(7.2%)
Statement 20: I do not gain a lot from projects.	39(25%)	97(62.2%)	19(12.2%)-1
Statement 21: I find projects difficult	80(51.3%)	46(29.5%)	27(17.3%)-3
Statement 22: I find projects motivating.	119(76.3%)	18(11.5%)	18(11.5%)
Statement 23: I do not find projects a satisfying method of learning.	46(29.5%)	78(50%)	32(20.5%)
Statement 24: When I find out I am going to do a project; I do not know where to start.	87(55.8%)	45(28.8%)	24(15.5%)
Statement 25: Projects are time consuming.	105(67.3%)	31(19.9%)	20(12.8%)

Table 4.2

Total percentage of each genders scores for each statement.

		FEMALE % N1=113		MALE% N2=43
		Agree	Disagree	No Opinion
Statement 1; Projects help me apply my knowledge.	Female	108(95, %)	4(3.5%)	1(.9%)
	Male	40(93%)	1(2.3%)	2(4.7%)
Statement 2: Projects are more interesting than traditional classrooms.	Female	85(75.2%)	16(14.2%)	12(15.6%)
	Male	31(72.1%)	4(9.3%)	8(18.6%)
Statement 3: Projects improve my communication and time management skills.	Female	102(90.3%)	5(4.4%0	6(5.3%)
	Male	37(86%)	3(7%)	3(7%)
Statement 4: Projects increase my motivation.	Female	93(79.6%)	11(9.7%)	12(10.6%)
	Male	37(86%)	1(2.3%)	5(11.6%)
Statement 5: Projects are more satisfying than studying from a textbook	Female	91(79. %)	11(9.7%)	12(10.6%)
	Male	31(74%)	3(7%)	8(18.6%)
Statement 6: Projects are frustrating.	Female	64(56.6%)	24(21.2%)	25(22.1%)
	Male	21(48.8%)	9(20.9%)	13(30.2%)
Statement 7: I find during a project I struggle with many problems.	Female	79(69.9%)	12(10.6%)	22(19.5%)
	Male	19(44.2%)	11(25.6%)	11(25.6%)
Statement 8: I participate better in projects than working on my own.	Female	106(93.8%)	2(1.8%)	5(4.4%)
	Male	40(93%)	0	3(7%)
Statement 9: I like the freedom and flexibility of projects.	Female	87(77%)	7(6.2%)	19(16.2%)
	Male	42(97.7%)	0	1(2.3%)
Statement 10: I believe PBL gives more factual knowledge of learning than in a normal classroom.	Female	75(66.4%)	7(6.2%)	31(27.4%)
	Male	36(83.7%)	4(9.3%)	3(7%)
Statement 11: Projects help me understand the subject more	Female	78(69%)	3(2.7%)	32(28.3%)
	Male	28(65.1%)	3(7%)	8(18.6%)
Statement 12: I improve in my reflecting during a project.	Female	90(79.2%)	3(2.7%)	20(17.7%)
	Male	36(83.7%)	2(4.7%)	5(11.6%)
Statement 13: Teamwork and interpersonal skills during a project are better than a traditional class.	Female	88(77.9%)	6(5.3%)	19(16.8%)
	Male	37(86%)	2(4.7%)	4(9.3%)
Statement 14: I desire more projects to be organised in my class work.	Female	84(74.3%)	4(3.5%)	35(22.1%)
	Male	32(86%)	3(7%)	8(18.6%)
Statement 15: I do not learn a lot from projects.	Female	23(20.4%)	78(69%)	12(10.6%)
	Male	9(20.9%)	26(60.5%)	7(16.3%)
Statement 16: I feel projects are a satisfying way to learn	Female	96(85%)	3(2.7%)	14(12.4%)
	Male	30(69.8%)	5(11.6%)	7(16.3)
Statement 17: Projects are difficult due to the independent aspect of PBL.	Female	56(49.6%)	27(23.9%)	30(26.5%)
	Male	19(44.2%)	13(30.2%)	10(23.3%)
Statement 18: I respond negatively when I find out I am doing a project.	Female	56(51.3%)	24(21.2%)	31(27.4%)
	Male	17(39.5%)	16(37.2%)	9(20.9%)
Statement 19; I gain a lot from projects.	Female	93(82.3%)	12(10.6%)	8(7.1%)
	Male	37(86%)	3(7%)	3(7%)
Statement 20: I do not gain a lot from projects.	Female	32(28.3%)	69(61.1%)	12(10.6%0
	Male	7(16.3%)	8(65.1%)	7(16.3%)
Statement 21: I find projects difficult	Female	65(57.5%)	32(28.3%)	14(12.4%)
	Male	15(34.9%)	14(32.6%)	13(30.6%)
Statement 22: I find projects motivating.	Female	85(75.2%)	17(15%)	10(8.8%)
	Male	34(79.1%)	1(2.3%)	10(23.3%)

Table 4.2 (Continued)

Total percentage of each genders scores for each statement.

		Agree	Disagree	No Opinion
Statement 23: I do not find projects a satisfying method of learning.	Female	5(31%)	56(49.6%)	22(19.5%)
	Male	11(25.6%)	22(51.2%)	10(23.3%)
Statement 24: When I find out I am going to do a project; I do not know where to start.	Female	68(60.2%)	27(23.9%)	18(15.9%)
	Male	19(44.2%)	18(41.9%)	6(14%)
Statement 25: Projects are time consuming.	Female	83(73.5%)	17(15%)	13(11.5%)
	Male	22(51.2%)	14(32.6%)	7(16.3%)

- **PBL improved their communication skills and other skills**

Of the total number of Emirati student respondents, 139/156 (83%) reported that they were satisfied with the development of their communication and time management skills (Statement 3) and attributed this to doing PBL projects. The gender result between Emirati females (102/113, 93%) and male students (37/43 or 86%) also shows a high level of satisfaction with the skills they developed through PBL assessment. On statement 13, 125 (50%) students, 37/43 males and 88/113 females responded their teamwork skills and interpersonal skills had improved during PBL group work. When comparing students from the two courses (63/76 students in Business and 63/80 students in IT), it seems that students in both courses agreed that collaborating in groups improved their group and communication skills.

Similarly, over 85% of Business and 88% of IT students agreed that their general skills improved. One hundred and thirty out of 156 students responded positively to Statement 19 where they indicated they gained a lot by doing projects. This was again confirmed by 93 (83%) females and 37 (86%) males who felt their skills and learning had improved because of participation in projects. where agreed together, showing that the variable of gender did not have an influence on this statement. For students of either course, the data in Table 4.3 shows that 64 (84%) Business and 66 (82%) IT students both agreed they were progressing in their learning because of PBL projects.

Further confirmation of the student positive response to Statement 19 that they gained a lot from projects was evident by the high level of disagreement to Statement 20, "I do not

Table 4.3

Total percentage of student scores for each statement. from each course

BUSINESS %N1=76 IT % N2=80

		Agree	Disagree	No Opinion
Statement 1; Projects help me apply my knowledge.	BUSINESS	71(93.4%)	3(3.9%)	1(2.6%0
	IT	77(96.3%)	2(3.8%)	1(2.6%)
Statement 2: Projects are more interesting than traditional classrooms.	BUSINESS	55(72.4%	10(13.2%)	4(5.3%)
	IT	61(76.3%)	10(12.5%)	9(11.3%)
Statement 3: Projects improve my communication and time management skills.	BUSINESS	68(89.5%)	4(5.3%)	4(4.3%)
	IT	71(88.8%)	4(5%)	5(6.3%)
Statement 4: Projects increase my motivation.	BUSINESS	60(78.9%)	4(5.3%)	12(15.8%)
	IT	70(87.5%)	1(1.3%)	9(11.3%)
Statement 5: Projects are more satisfying than studying from a textbook	BUSINESS	59(76.3)	5(6.6%)	12(15.8%)
	IT	63(78.5%)	9(11.3%)	8(10%)
Statement 6: Projects are frustrating.	BUSINESS	42(55.3%)	15(19.7%)	19(25%)
	IT	43(53.8%)	18(22.5%)	19(23.8%)
Statement 7: I find during a project I struggle with many problems.	BUSINESS	47(61.8%)	12(15.8%)	16(21.1%)
	IT	51(63.8%)	11(13.8%)	17-1(21.3%)
Statement 8: I participate better in projects than working on my own.	BUSINESS	73(96.1%)	1(1%)	2(2.6%)
	IT	73(91.25%)	2(2.5%)	5(6.25%)
Statement 9: I like the freedom and flexibility of projects.	BUSINESS	64(84.2%)	4(5.3%)	8(10.5%
	IT	65(81.3%)	3(3.8%)	12(15%)
Statement 10: I believe PBL gives more factual knowledge of learning than in a normal classroom.	BUSINESS	52(68.4%)	7(9.2%)	17(22.4%)
	IT	59(73.8%)	4(5%)	17(21.3%)
Statement 11: Projects help me understand the subject more	BUSINESS	51(67.7%)	2(2.6%)	36-4(25%)
	IT	55(68.8%)	4(5%)	21(26.3%)
Statement 12: I improve in my reflecting during a project.	BUSINESS	63(82.9%)	3(3.9%)	10(13.2%)
	IT	63(78.8%)	2(2.5%)	15(18.8%)
Statement 13: Teamwork and interpersonal skills during a project are better than a traditional class.	BUSINESS	63(82.9%)	5(6.6%)	10(13.2%)
	IT	62(77.5%)	3(3.8%)	15(18.2%)
Statement 14: I desire more projects to be organised in my class work.	BUSINESS	59(77.6%)	4(5.3%)	`3(17.1%)
	IT	57(71.3%)	3(3.8%)	20(2.5%)
Statement 15: I do not learn a lot from projects.	BUSINESS	16(21.1%)	50(65.8%)	10(13.2%)
	IT	16(20%)	54(67.4%)	9(11.3%)
Statement 16: I feel projects are a satisfying way to learn	BUSINESS	66(86.6%)	3(3.9%)	6(7.9%)
	IT	60(75%)	5(6.3%)	15(18.8%)
Statement 17: Projects are difficult due to the independent aspect of PBL.	BUSINESS	44(57.9%)	16(21.1%)	16(21.1%)
	IT	3138.8%)	24(30%)	24(30%)
Statement 18: I respond negatively when I find out I am doing a project.	BUSINESS	39(51.3%0	18(23.7$)	18-1(23.5%0
	IT	36(45%)	22(27.5%)	7(8.8%)
Statement 19; I gain a lot from projects.	BUSINESS	64(84.2%)	8(10.5%)	4(5.3%)
	IT	66(82.5%)	7(8.8%)	7(8.8%)
Statement 20: I do not gain a lot from projects.	BUSINESS	22(28.9%)	46(60.5%)	7(9.2%)
	IT	17(21.3%)	51(63.8%)	12(15%)
Statement 21: I find projects difficult	BUSINESS	36(47.4%)	23(30.3%)	17(22.4%)
	IT	44(55%)	23(28.8%)	10(12.5%)
Statement 22: I find projects motivating.	BUSINESS	63(82.9%0	8(10.5%)	5(6.6%)
	IT	56(70%)	10(12.5%)	13(16.3%)

Table 4.3 (Continued)

Total percentage of student scores for each statement. from each course

		BUSINESS %N1=76 IT % N2=80		
		Agree	Disagree	No Opinion
Statement 23: I do not find projects a satisfying method of learning.	BUSINESS	23(30.3%)	38(50%)	15(19.7%)
	IT	23(28.8%)	40(40%)	17(21.5%)
Statement 24: When I find out I am going to do a project; I do not know	BUSINESS	42(55.3%)	20928.9%)	12(15.8%)
where to start.	IT	45(56.3%)	23(28.2%)	12(15%)
Statement 25: Projects are time consuming.	BUSINESS	51(67.1%)	15(19.7%)	10(13.2%)
	IT	54(67.5%)	16(20%)	10(12.5%)

gain a lot from projects.". Ninety-seven students (67%) felt satisfied they were gaining skills, satisfaction and motivation by doing projects compared with only 39 students (25%) who felt dissatisfied with having to participate in this pedagogy. Forty-six Business students (60%) and 51 IT students (61%) felt PBL projects were a positive experience.

- **Students felt they were learning more through the PBL projects**

Interview data provided examples of the 'gains' students experienced from PBL assessment. Student 37 recognised that she was gaining a range of skills such as critical thinking, communication skills which allowed her to learn from doing projects

"Thinking critically or analysing the information I have to study is something I like about doing projects. I also think I am improving in my communication and problem solving.…. I have found doing projects to be a new learning experience. But it is different to the traditional, one-way learning method of lectures, but doing projects allows me to think more, learn more, and explore more." (Student 37, student interview, May 28, 2012). Similar reports came from Student 6, Student 10 and Student 40 who noticed that not only did her communication improve but also her ability to solve problems. Student 9 and Student 24 the project was beneficial in that it gave opportunities to develop reading skills through researching the project.

Data presented in Tables 4.1, 4.2 and 4.3 together provide a summary of male and female responses indicating agreement that projects helped them apply their Business and IT knowledge. From a total of 156 students, 148 respondents agreed. Gender was not a

discriminating factor nor was there a significant difference across Business and IT classes. The majority (93% of Business students and 77% of IT students) agreed that their project was helping them apply what they were learning. Students recognised that PBL was enhancing their learning comes from the high level of agreement with Statement 10 “PBL gives more factual knowledge of learning than in a normal classroom”, and Statement 11 “Projects help me understand the subject more”. where close to 70% of all students reported high levels of approval with their levels of learning through PBL across gender and courses. Confirmation from the interviews tends to show students recognised that they were learning better from doing projects. Student 7 stated: "I think I do. I believe I am learning a lot out of it. Well it is better than doing lectures." (Student interview, May 21, 2012). Student 10, (student interview, May 23, 2012 appreciated the group work for learning: "Projects help me (sic) what I am learning and I think it is helping me with talking to others in my group”.

When responding to Statement 15, only a small group of 32 (20%) students responding that they were not learning when doing projects. In responding to Statement 16 a total of 126 (80%) students reported a high level of agreement they were learning through the PBL project with similar percentages by males and females satisfied with the quality of their learning from their project.

The questionnaire data were supported by the student interviews. From the data indicated in Appendix P, Student 2 acknowledged she was busier because of doing the project but felt that she was learning because of the project. Student 28 recognised that PBL projects were helping her learning in a practical way while. Student 25 accessed more information and therefore learnt more. Student 30 felt she was learning because of the practical side of the PBL project and enjoyed working within her team. She did not say if the team work was helping her learning though.

- **Students appreciated group work.**

According to Chiriac (2014) PBL projects are done in groups, for multiple purposes and goals, such as teachers using group work to develop collaboration and communication skills. On Statement 8, 146 students responded that they participated better on projects. with 73% of Business students and 73% of IT students indicating a higher level of preference to work in groups than on their own.

Students expressed an appreciation for group work which was a major part of the PBL pedagogy. For Student 8, the advantage of being in a group was that it helped her learn from her group partners. Student 15 appreciated the support and guidance from another student. This example represents how the Zone of Proximal Development for this student was being supported by a peer who was more experienced and assisted the Student15 to become more knowledgeable about using spreadsheets. Student 25 highlighted that working in a group showed her that co-operation and delegation towards the same goal made the workload lighter. For Student 27, group interaction made the activity fun and interesting. Student 40 highlighted that she learnt from her partners, but there were times where disagreement occurred. It could be that the learning was occurring from the disagreement as new ideas were shared and these ideas showed Student 40 new perspectives on solving problems or background information she was unaware about. Sharing and making new friends was a reason why Student 38 liked doing projects. Student 12 felt that when she had a problem, the group was there to help support her through it.

- **PBL helped students towards independent learning**

Seventy-five (48%) respondents to Statement 17 “projects are difficult due to the independent aspect of it” indicated that they found being independent during the project difficult. However, 40/156 (25%) of students disagreed with the statement which could indicate that they were managing being independent when doing the project. Another 40 of the 156 respondents (25%) gave a ‘no opinion’ response indicating they considered they could work as self-directed learners. Both males and females responded similarly with49% of females and 44% of males, Business students (57%) and 38% IT students agreeing that projects were difficult due to the independent aspect of it One student in the interviews felt positive about working on her own as she had to complete some work assigned to her by her group. She reported, “I am also working on my own, I like that I am doing the project work that my group has given me to do. I like research. (Student 28, May 27, 2012).

- **Students could see connections in what they were learning to the project,**

In this study, a similar sentiment was echoed by a few students in the interviews who appreciated PBL projects for allowing them to experience first-hand real situations in their Business/IT project. Student 26 stated: "I like the idea that we have chosen for our project and investigate something that interests us and it relates to our future life. I think this is making coming to class more interesting and it will give us many advantages," (Student interview,

May 27, 2012). Some students felt that PBL was useful because they saw connections between what they were learning from their classwork and in their projects when interacting with a local business or IT team. Student 12 liked the opportunity to apply what she learnt as it also applied to future employment. Student 13 revealed that her use of spreadsheets at both school and at her job helped her transfer the skills she had used to her workplace. Similarly, Student 23 felt the practical learning experience of doing spreadsheets for their business project had applications to any future employment. Student 18 imagined what it would be like doing her project at a real place of employment and saw the connection between what she was doing with her project and the workplace. Student 39 felt her confidence was developing because of the project.

- **Students desired more support or resources from their teachers.**

Students in the interviews indicated clearly that they desired more support or resources from their teachers as in Appendix P. Some students felt they struggled to find their own resources. This reason for this issue could stem from not being proactive in searching for their own material. There could be a genuine reason for students being frustrated because they lacked this skill. The teachers may have been following the PBL expectation that students should source their own materials and not depend on the teacher. It is likely that this situation existed giving explanations for, students' frustration and indicating that teachers needed to explicitly state the PBL expectation, even if the explanation upset the students.

- **Students disliked group work,**

Another frustration some students experienced with PBL projects was the issue of disliking group work. For example, Student 2 disliked group work because members in her group, argued often and this affected the project progress. Student 9 found working in a team was difficult and she preferred to work alone. Student 10 experienced group members who imposed their ideas on other group members making it difficult for the group to function. Students 23 and 26 disliked group works because they did all the work. Student 24 held a similar view to Student 10 who found that some individual group members took over the group and made the experience unpleasant. Student 40 explained that if the work was not distributed evenly, one student would have to do all the work. This made Student 40 believe that belonging to such a group was unfair and difficult. Similarly, Student 37 felt that group work could go both ways but agreed with Student 40, that when one person was landed with

all the work, it made the experience of group work difficult and frustrating. That is the reason Student 40 gave for being willing to do all the work just to get the grade.

•Students desired more time for the project

Emirati students reported that they felt projects were time consuming in response to Statement 25. One hundred and five students, responded that projects are time consuming yet19.9% indicated they could manage their time well and complete their projects on time. More females than males responded negatively to this statement, where 83 females (73%) and only 22 males (51%) felt that projects were too time consuming. Whereas, for each subject, the r students agreeing projects were too time consuming. (Table 4.3).

The student interviews revealed further findings on students being frustrated by projects being so time consuming. (Appendix P). Students 10, 11 and 24 voiced the opinion that they needed more time to complete the project and others needed an extension of time to complete the work. (Students 26, 29 and 30.) Student 33 explained that it was hard to balance doing the project and managing responsibilities for his family while Students 40 and 37 said teachers should give more time to students to finish. For example, Student 11 commented:

> "We need more time to do our project. I feel we do not have enough time. I think the teacher should give us more time to do these projects.....We need more time to complete the project as it feels the teacher does not give enough time to complete the project. Projects seem to take more time than I realise." (Student 11, student interview, May 23, 2012)

What was not indicated was whether the students had problems with keeping deadlines or needing help and support with learning how to improve their time management. In the following example, the student expressed frustration with the project being time-consuming, which supports the suggestion that students may have had a problem with time management. When asked: "What don't you like about projects?" the student stated: "This project has been time-consuming. I have to organise the photos or write up weekly. I enjoyed it at the start but now at the end, I just want to hand it in." (Student 27, student interview, May 27, 2012). One student felt they needed more time to undertake their project, which is similar to the questionnaire responses, with one student commenting: "I think we need more time to do project work, even if we are in groups. So, I feel we are not getting many benefits. This project seems to take

a lot of time," (Student 37, student interview, May 28, 2012). Another student also expressed a negative opinion about the time required for projects: 'We need more time; I do not do the project at home. We can only do it in class." (Student 10, student interview, May 22, 2012).

- **Projects were frustrating and difficult**

Students found areas of PBL projects frustrating and sometimes difficult. The issues ranged from finding it time-consuming, difficulties with group members, and the requirement for more resources. Such frustrations detracted these students' enjoyment and positive participation in PBL projects.

Statement 6 related to the frustrating nature of projects. Around 50% of respondents were dissatisfied with PBL projects finding certain aspects of the activities frustrating compared with 21% who experienced few frustrations during the PBL process. Another group of 38 (24%) students were neutral indicating they could have been frustrated with aspects of PBL but not all the time. There were no significant differences between males and females. Fifty-five percent of Business students and 53% of IT students expressed frustration with doing PBL projects, yet the19%Business students and 22%IT students disagreed with Statement 6 indicating that projects were interesting, fun and a welcoming form of assessment in their coursework.

When responding to Statement 21, 51%)of students found projects difficult, yet29% students considered them not difficult. With another 17% of students finding PBL projects difficult depending on the circumstances. There were no strong differences in female and male students views on this question

. The interviews revealed that students found projects to be problematic. One student showed that she felt she had difficulty finding resources and therefore wanted better teacher support: "I need more stuff like handouts or answers from the teacher," (Student 3, student interview, May 21, 2012). Project difficulties were reflected by Student 24 (student interview, May 24, 2012): "Sometimes I feel worried about doing this project as I don't know if I am going to fail, I don't know if I am doing the right thing,". Students explained they found projects difficult because the project required extra effort on their part. For example, in an interview statement one student noted:

"Also, projects are too much work; I have very little time at home and do what I can in class time but it is hard work," (Student 1, student interview, May 21, 2012).

Some 55% of students reported being confused by not knowing where to start the project (Statement 24). They may have felt confused with what was being asked of them about the whole PBL project process, how to find information or finding what the teacher stated difficult to comprehended. Where45 students (28%) felt confident to start their project, another 24 students felt hesitant about starting. As Table 4.2 shows, a smaller group of 27 females and 19 males felt they could not work out where to start their projects and would likely seek more help or advice from their teacher.

One of the frustrations indicated by students in their interviews related to group work, particularly, having to carry non-contributing members. In the interviews, students used phrases such as: "I do not like the team groups, I mean, they are fun at times but when we argue over something, what is the point? I mean, I really find teamwork frustrating, it is hard to work," (Student 2, student interview, May 21, 2012). "Projects take up too much work," (Student 11, student interview, May 22, 2012). "...Also, in one of my groups, I did all the work and ended up having to do the work of another student and this is very tiring," (Student 26, student interview, May 27, 2012).

Another student stated:

> "I don't like group work. Sometimes members of the group want to control everything. It is hard to handle when we conflict. I think our group has struggled and made some relationships not so strong but we want to get the project finished and get a good grade. Some of us have ended up doing all the work and right now I am helping another person to do her part. In another group, I did all the work and this is too tiring." (Student 24, student interview, May 24, 2012)

Sixty-two percent of respondents to Statement 7 (Table 4.1) reported problems with their PBL projects with no significant gender differences. By contrast twelve females (10%) and 11 males (25%) felt they did not struggle with problems in their PBL projects with 22 females (19%) and 11 (25%) males were neutral on the issue. Some students in giving an overall evaluation of PBL projects found the activity was too much work and confusing when there was not one suitable answer (Student 1). Student 31 regarded the, deadlines for projects frustrating while Student 40 was tired of the project. This reaction could have been because

she was doing most of the work to complete the project making her tired of the whole activity.

•Students noted the impact of their home culture

An outside influence on students' ability to work on their projects was the issue of the local culture. Some of the females expressed difficulty in meeting up off campus because as females their movements off campus were restricted. Social media enables them to overcome the social barriers allowing them to keep in touch. The constraining factor which limited their project progress was that they could only work on the project during class time and from home. Student 19 explained her difficulty in comprehending what she was learning while male Student 35 explained that his first responsibilities were to his family and then to his course work. This cultural phenomenon is documented well by Almehairi (2015).

- **Students lacked background experience in PBL**

Some students stated they had very little understanding or previous experiences with PBL projects with the negative effect of finding the PBL process confusing. Student 36 accorded not understanding the PBL process to her life becoming stressful. Student 21regarded not having PBL projects in secondary school and encountering them for them for the first time in this higher education campus to be daunting.

- **Students felt their English was adequate for projects.**

Students in interviews who answered the question for their English being adequate for undertaking the project expressed confidence in their English ability regarding their English proficiency as adequate to undertake the projects. Appendix O shows the number of years students had been studying English. To help make the results easier to analyse, the years were grouped into two categories, where students had learned English for less than 5 years (<5) and more than 5 years (>5). The results show that there are no significant differences between the number of years students had been learning English and how they answered each statement although there were some small differences in some statements. These data do not indicate clearly a result for students having more than 9 years learning English and their positive experiences with PBL. The high percentages of agreement could mean the students were confident with their level of English to undertake projects. Students who had learnt English less than 5 years showed the same high level of positive attitudes towards

undertaking business or IT assessment through PBL projects. Again, they may have felt their level of English was suitable to undertake PBL projects.

4.2 Data and findings from the second research question: *How do Business and IT expatriate teachers view their students' attitudes towards PBL?*

4.2.1. Teacher questionnaire and interviews

The following themes were identified from the teacher questionnaires and interviews:

Teachers considered that students found projects interesting, that their motivation increased and that PBL was a satisfying means for students to learn as they made connections in the course content through the project. Teachers recognized improvements in student communication skills and other skills which enables students to learn more. They observed students appreciating group work although some disliked it. Teachers identified that students needed more support as scaffolding to use resources and that limited previous exposure to PBL approaches in secondary school hindered their progress and acceptance of projects. They recognized that taking a longer time to complete a project task may have led to some frustrations and difficulties particularly when student proficiency in English they considered was not adequate for PBL. The influence of home culture on students was a powerful disincentive at times.

- **Teachers recognized that students found projects interesting,**

In response to Statement 2 (Table 4.4), all eight teachers agreed that projects were more interesting in keeping student attention than if they were studying a traditional classroom environment. When asked: "Do the students like projects?" one teacher commented in the interviews that:

> 'Overall, I believe that the students are benefiting from doing projects. They are not bored, they are interacting together and they are working together to produce a presentation which has to be ready in two weeks' time." (Teacher 5, teacher interview, May 27, 2012)

- **Teachers recognised student motivation increased**

On Statement 4, seven teachers agreed that projects increased their students' motivation, while one teacher disagreed. Five teachers felt that their students were motivated by doing projects (Statement 22) with one teacher disagreeing and two teachers expressing no opinion.

- **Teachers felt projects helped with the self-directed skill**

Results were divided for Statement 17, where four teachers did not feel that the independent aspect of PBL created difficulties for their students. Three teachers thought the independent aspect of PBL was hurting their students' progress with PBL, while one teacher had no opinion.

- **Teachers felt PBL is a satisfying method in which helps students learn.**

Seven teachers agreed with Statement 5, where they believed that their students were more satisfied doing projects than if they were studying from a book, though one teacher disagreed. On Statement 16, six teachers agreed that projects were a satisfying way for their students to learn Business/IT. Two teachers disagreed. Seven teachers disagreed with Statement 23indicating that they considered their students found projects a satisfying method to learn through whereas, one teacher felt the pedagogy was an inappropriate learning pedagogy. From the interviews, Teacher 7 stated:

> "I would like them to have this situation where they have deeper learning and understanding of business concepts. What I find is that the students are learning the concepts alongside the project and they are having to apply what they know but they do struggle…. I feel the benefits for Emirati students doing PBL are compelling: I feel they can gain deeper learning, they can be more engaged, and possibly give something back to the local business community," (Teacher 7, teacher interview, May 29, 2012). Here the teacher is stating that he/she desires their students to gain deeper learning of Business and that PBL is one way that can be achieved. The PBL assessment is giving his/her students opportunities to learn but they witness their students struggle with the PBL process.

Table 4.4:

Total number of teacher responses to each statement

Statements	Agree	Disagree	No Opinion
Statement 1; Projects help my students apply my knowledge.	8		
Statement 2: Projects are more interesting than traditional classrooms for my students.	8		
Statement 3: Projects improve my student communication and time management skills.	7		1
Statement 4: Projects increase my student motivation.	7	1	
Statement 5: Projects are more satisfying for my students than studying from a textbook	7	1	
Statement 6: Projects are frustrating for my students.	5	1	2
Statement 7: My students find during a project they struggle with many problems.	4	2	1
Statement 8: My students participate better in group projects than on their own	8		
Statement 9: My students like the freedom and flexibility of projects.	6	2	
Statement 10: I believe PBL gives my students more factual knowledge of learning than in a normal classroom.	6		2
Statement 11: Projects help my students understand the subject more	7	1	
Statement 12: My students improve in their reflecting during a project.	1	7	
Statement 13: I see my students improve in their teamwork and interpersonal skills during a project than they would during a traditional class.	7	1	
Statement 14: My students desire more projects to be organised in their class work.	2	4	2
Statement 15: My students do not learn a lot from projects.		7	1
Statement 16: My students feel projects are a satisfying way to learn	6	2	
Statement 17: My students find projects difficult due to the independent aspect of PBL.	3	4	1
Statement 18: My students respond negatively when they find out they are going to do a project.	1	1	6
Statement 19; My students gain a lot from projects.	7		1
Statement 20: My students do not gain a lot from projects.	1	7	
Statement 21: My students find projects difficult	4	2	2
Statement 22: My students find projects motivating.	5	1	2
Statement 23: My students do not find projects a satisfying method of learning.	1	7	
Statement 24: When my students find out they are going to do a project; they do not know where to start.	4	1	3
Statement 25: My students find projects time consuming.	6	1	1

Teachers commented that they saw the PBL pedagogy as useful because it made learning interesting for their students. Teacher 2 saw his students interacting together and being busy. Therefore, he considered being busily engaged led to better learning. Teacher 3 found PBL projects were culturally appropriate for her students because from her point of view, working together as a group fitted cultural norms and PBL as a pedagogy is team based. Teacher 4 felt very positive about his students participating in projects because he could see them reacting positively to the pedagogy. The students took the project seriously and were focused. Teacher 5 presumed that PBL projects were suitable for his students because the students were engaged yet he found the quality of their work quiet low. Teacher 6 explained that students were interested in projects because they saw a personal relevance in the activities and they became confident.

- **Teachers considered that PBL improved student communication skills or other skills,**

Seven teachers indicated that projects improved student communication and time management skills (Statement 3), while one teacher disagreed. In response to Statement 13, seven teachers also agreed that their students' teamwork and interpersonal skills were better during a project than if the same students were participating in a traditional class. Only one teacher disagreed with this statement. One teacher agreed that projects improved student reflection skills, while seven disagreed with Statement 12. Seven teachers felt that their students improved in their teamwork skill and their communication skills because of projects, yet. one teacher disagreed. Seven teachers agreed that their students were gaining a lot from projects (Statement 19), while one teacher had no opinion. Seven teachers disagreed with negative Statement 20. The corollary, believing that their students did gain from PBL projects. Only one teacher felt that their students were not gaining anything from doing projects. Teachers commented in the interviews that they observed students developing skills from doing projects**.** Teacher 1 recognised that students were developing research skills, and more group skills, such as leadership and sharing of ideas. The teacher did note that the students lacked efficient group skills. Teacher 2 commented that his students were gaining practical skills such as developing surveys which had application for the students' future employment. Teacher 5 identified the range of skills that would continue to improve as the students did more projects through their lives. Teacher 3 felt that PBL was giving students many skill development opportunities:

"Students get a lot out of projects such as team work skills, research skills, critical thinking, etc. They get to learn how to write a report but they lack ideas on how to write a report. They have no idea of what a cover page is, or to make a contents page. They lack always to hand in a basic layout of a good report," (Teacher 3, teacher interview, May 23, 2012).

- **Teachers felt their students were learning more because of the PBL projects,**

All eight teachers agreed that projects helped their students apply their knowledge of Business/IT (Statement 1). For Statement 10, six teachers agreed that PBL taught more Business/IT factual knowledge than if the students were learning in a traditional lecture-based classroom. Two teachers had no opinion on this statement. Furthermore, on Statement 11, seven teachers felt projects helped their students learn more about Business/IT, while one disagreed. Seven teachers believed that their students were learning from projects, as they opposed Statement 15. One teacher had no opinion on this issue (Statement 15).

Only a few teachers mentioned that their students were learning because of PBL projects. They might have assumed it was common knowledge and therefore did not refer directly to the learning aspect of PBL. Teacher 1 stated directly that his students were learning about Business and IT because of PBL. Another benefit he mentioned was that the students were exposed to new information when doing the projects. Teacher 7 claimed that PBL projects gave the students an opportunity to learn via a 'hands on' approach.

- **Teacher saw students appreciate group work**

All eight teachers agreed with Statement 8, believing that their students participated better in groups than if they were doing projects on their own. Teachers also confirmed that they believed group work based activities such as PBL projects were beneficial for the student sample in this study. The teachers appreciated having PBL in their courses as their students improved their group work skills. Teacher 1 (teacher interview, May 21, 2012) noted "They are learning research skills and communication skills when working in a group. They also learn leadership and group dynamics. It is essential they learn teamwork skills…. Good students will not force weaker students to do any work but instead help them to pass as well

even though the teacher says do not help these students. Teacher 3 observed that students benefitted by sharing the workload but noted also failures if the students did not work cooperatively with each other's strengths. From the perspective of Teacher 6, the benefits of group work for the students involved the sharing of ideas. They gained by collaborating with each other and seemed to enjoy group work.

> "I like seeing students doing projects. It is great to see the students happy; they are excited when they are working together. They listen to each other's discussions. They are interested in solving issues and if they are serious about their project, they will really concentrate." (Teacher 4, teacher interview, May 24, 2012)

Teacher 5 (teacher interview, May 27, 2012) recalled the benefits students got from working in groups:

> "Of course, they get to apply what they learn from projects. They get to learn skills like presentation skills, research skills, communication skills, etc. They get better as they practice and produce more. The learning curve is hard at first for them but once they understand what is involved, they get on with it."

- **Teachers saw students make connections to the project in what they were learning**

Teachers also stated they saw their students making connections between what they were learning and the Business/IT environment in which they were interacting. Teacher 2 noticed that PBL helped students make connections between what was being taught in class and what they were doing in their projects in other class periods of the week. Teacher 4 noted the benefit of PBL in allowing students to investigate, which is a skill these students would not otherwise have gained had they been doing a lecture based course without practical work. Teacher 5 mentioned that the students applied what they learned. An application was illustrated by Student 12 (Section P.5, Appendix P) who stated that she was using at work what she was learning in class about how to use spreadsheets. Presumably this student had employment which was business related and was a student at the campus in the afternoons.

- **Teachers recognised that students needed more support or resources**

Teachers understood very clearly that their students desired more support and called for more resources. From the perspective of Teacher 1, students needed different levels of support depending on their level of education. He felt that the students at the lowest levels needed the most support and had very poor research skills when they reported back on their research orally or written. Teacher 4 was concerned that students did not take advantage of using the resources they had close at hand, such as the library. He experienced continual call for support by students, noting their weakness in not attempting to do things for themselves. Teacher 5 complained that the students never took advantage of the resources provided, by not attempting to read the material. They would turn to easier support strategies and as a result plagiarised. Teacher 6 claimed that the students lacked confidence in themselves and therefore they came to him for reassurance. He wanted his students to attempt to be self-directed but he did not explain how well they were achieving the goal of autonomy. It could be interpreted they lacked a background in self-directed behaviour. Teacher 7 considered that preplanning ahead would help students understand what was expected in the PBL process and it may have prepared them better for the project.

- **Teachers saw that some students disliked group work,**

Teachers in the interviews understood clearly that some students did not work well in groups. Teacher 1 noticed that it was difficult to know who was doing what in the group. This teacher allowed the project to be done in groups. One of the problems he identified was that there was the potential for just one student doing all the work and that person carried the rest of the group. Teacher 3 noted similarly that the hard-working students carried the less able students. The students who were helped he considered were missing out on the potential benefits of developing group and communication skills. This teacher also indicated that the students lacked essential background experience in group work. He found that communication among group members eventually broke down thereby creating barriers to the progress of the project and group collaboration. Another failure she highlighted was the lack of group leadership or the shared responsibly, with one person doing most of work for the group. Teacher 5 felt that the effort level of some group members was not balanced. Some students worked hard and others sat back and let the eager members work. Therefore, by asking the students to review their group member's effort, the teacher gained some indication who was working and who was not.

- **Teachers recognised that students found projects time consuming,**

Six teachers agreed with Statement 25 in that their students did find projects time consuming: one teacher disagreed and one had no opinion on the issue. The lack of effective time management on the part of the students was another issue that many of the teachers referred to in the interviews. Teacher 1 observed that most students very rarely submitted their projects on the due date. He noted a difference between the male and female students, with the female students completing and submitting work on time but the males procrastinated and their work would be often late. Teacher 2 echoed similar opinions but that male and female students handed their work late. The teacher continued that from his observations, students often left the bulk of the work to be completed the day before the due date and this resulted in the project work being of poor quality. He puts this down to the students procrastinating and having no training in how to manage their time. He recognised that they had a lot of other outside influences such as family responsibilities. Teacher 3 continued the same theme, where she again confirmed Teacher 2 observations that students only started working on the project just before the deadline. Lastly, Teacher 6 complained that his students had plenty of time to do the project but they did not use it wisely and it was frustrating for the teacher to see his students not taking personal responsibility.

- **Teachers were aware that students found projects frustrating and difficult**

When it came to Statement 6, there was some disagreement among the teachers; five teachers agreed that projects were frustrating for the students, one had no opinion, while two disagreed. One example for students struggling with projects was when they had to begin them. There were mixed results for Statement 24. Four teachers agreed that their students would struggle beginning a project, three teachers had no opinion, which could mean that it may depend on the project idea or the group. One teacher disagreed and was indicating that their students could get started on their projects without any problematic issues.

- Presumably they felt their students did not find projects frustrating (See Appendix R). During the teacher interviews, Teacher 1 indicated that students did not manage their time and plagiarised content from the Internet.
- The teachers confirmed the students' perceptions that PBL is hard work in that group work could prove difficult for students.

- If group work was assigned to be done outside the class, it was hard to know who was doing all the work and who was not doing work. “You do not know who is contributing. It is easier to monitor this in the classroom. Students do work in the classroom but most of the projects are done predominantly at home which may last for a few weeks” noted Teacher 1, (teacher interview, May 21, 2012).
- Four teachers agreed with Statement 7 recognising that their students did struggle with doing projects on their own, while two had no opinion, and one teacher disagreed, an indication that those students did not struggle with doing projects.
- **Teachers noted the impact of the home culture**

Teachers in this study clearly understood the impact the culture had on their male and female Emirati students. Teacher 2 observed the impact family responsibilities had on male students who undertook family burdens while also being a student. Another issue this teacher observed was that that the student attention span was short and students were easily distracted, making it difficult for this teacher to keep students focused and engaged with the lesson. Teacher 4 highlighted the problem female students had in not being permitted to meet off campus and this affected their ability to progress with their project. Teacher 5 again confirmed what Teacher 2 stated that male students lost valuable time because they were called to undertake family responsibilities during class time. Teacher 6 also noted female students lacked skills in making personal decisions because it was customary for someone else to make decisions for them. They found working in a PBL environment difficult because the activity required them to make choices for the first time and this was foreign to them, therefore they were daunted by this new experience which affected their work within groups and in making effective choices for the project solution. Teacher 7 described a general stereotype which was experienced by other teachers who worked with both males and females. Teachers found female students to be more receptive to teach because they were more focused than the male students. Males had greater freedom than the females. They could leave the campus when they wanted and were not confined to the campus or classroom. They were more likely to be distracted. The teacher may seem to have been biased but as Ripley (2017) confirmed, there are differences in how the Middle Eastern genders approach their education or classroom work.

- **Teachers were aware that students lacked background experience in PBL**

Teachers highlighted that lack of past exposure to PBL in secondary school hindered student progress on projects. Female teacher 3who taught a business class commented that the first-year students in the program were the hardest to prepare for the PBL assessment; yet by the third year, the students were well prepared to do any PBL assessment. As a strategy, the teacher prepared a model example for students to follow but she found they directly copied it. To further support the students, Teacher 3 broke each stage of the project into short sections. Teacher 5 felt the students lacked effective research skills or were unable to create their own work and therefore, they turned to plagiarism as a coping mechanism to overcome the difficulties they faced. Teacher 5 observed that his students had not been able to choose a suitable solution to solve a problem. Teacher 7 made several comments in relation to his students lacking problem-solving skills. He put this down to the students having limited life experiences. The teacher also felt that student progress with PBL was impacted by their secondary school education. Therefore, he felt he had to give more support to the students than he really wanted to ensure they could progress with their project.

Teacher 2 observed his students having difficulty in expressing their ideas in business due to having limited understanding of what is involved in a business. Teacher 3 felt the students lacked essential educational skills such as understanding how to write a report. Teacher 4 identified lack of basic IT knowledge and this meant he had to spend extra time explaining basic IT concepts that he assumed they would have when they started the course. In the opinion of Business Teacher 5, students had limited knowledge in what was involved in a business such as simple concepts of trade. Teacher 6 was willing to offer his students support but found his students lacked the personal effort in what it meant to keep appointments as common courtesy. Teacher 2 confirmed what Teacher 5 explained that the students had little experience in commerce and therefore become easily lost in what they were learning.

- **Teachers felt their students English was in adequate for projects**

All teachers commented on the low English proficiency levels of students and the impact on students' ability to function within the PBL process and with associated group work. Teacher 1 explained that the students struggled comprehending basic teacher instructions and

therefore misunderstood results. Low levels of English caused students to resort to plagiarism. Teacher 2 noted that students from each other because they were unable to read and prepare their own answers from the resources they were given. Teacher 3 was frustrated with the low levels of English grammar that the students had and there were often basic mistakes presented in their work. She noted they did not read their work. Teacher 4 found the low English proficiency was problematic at many levels, such as not understanding vocabulary and not being able to read and identify suitable material. Teachers 4 and 6 also commented on student reliance on plagiarism to complete the project. Teacher 5 on the other hand was more sympathetic recognising that the students needed more support because of their low proficiency in English.

4.2.3 Comparison of student and teacher opinions of PBL

Firstly, both groups acknowledged that in general, students like doing PBL in the Business and IT classes. From the teachers' points of view, students worked well in groups, liking the social interaction and engaging when doing project work in class time. However, the teachers commented that the students' energy directed towards projects was impacted negatively by a lack of background experience with the PBL process and lack of personal world experience with Business and IT.

Both teachers and students acknowledged that the task was difficult, frustrating and too much work. Teachers commented that the students resorted to students to plagiarism to make up for lost time or lack of understanding. Students complained about the openness of doing projects, in that there was no one answer and that teachers acknowledged this issue frustrated the students. On the other hand, the majority of the female classes were observed to working quite well and were often focused on their projects. Observations from the male class showed the students were bored and disinterested... The male students when interviews were against stated they disliked doing projects because they were too much work.

Both teachers and students felt PBL projects were aiding students to learn about Business and IT. Teachers felt that students were gaining essential knowledge about the courses by participating in PBL projects. Students in the interviews acknowledged that they felt they were learning more about Business and IT because of participating in PBL projects, but more so because of the group work. Students felt PBL projects were an avenue where they could match what they were learning to real world situations in business and IT. The

students also felt they were learning more in PBL projects than listening to their teachers. Teachers also support the students' comments in that PBL projects/group work was giving the students opportunities to match theory with real world experiences. The students felt they were applying what they had learnt. On the other hand, the teachers felt the level of learning was high quality which was witnessed by the poor quality of content presented in the presentation.

Students felt they needed more support however the teachers also confirmed this as concern, because the students lacked either suitable English to identify suitable resources or had no idea even how to function in the library. During the class observations, the researcher did not observe any demand for resources by the students which could be due to the class observations taking place at the end of the project process.

The teachers wanted their students to learn to be more independent and follow the PBL process. Teachers acknowledged that the students needed more support from them and that they had given more than enough support to their students. Students were upset if the teacher did not acknowledge the answer they had found for the project as the right one. The teacher would state there was no right answer and this would frustrate the students more. The result was that students felt maligned by the teacher and took this as a sign the teacher was unwilling to co-operate. What the teachers in fact wanted to do was to encourage the students to become more engaged with the project and become more independent. During the class observations though, the issue of students requesting support from the teacher was not observed at all.

One group of students in the interviews indicated they liked doing group work. Reasons for this included being able to work as a team, being able to share responsibilities and share the workload. These students also indicated they found group work enjoyable. The teacher interviews confirmed what the students were saying, in that they had observed students happily engaged in group work. The teachers saw the inclusion of group work as important for their students because of the potential opportunities for students to develop and experience leadership skills, group interaction, group communication and collaboration. However, the downside on the views of the teachers was that students needed a lot of training but their enthusiasm made up for this. From the observation period, most groups worked well together. This seemed to confirm what was said in the interviews.

Both groups agreed that non-contributing group members really impacted the group dynamics. The result would be that the hard-working students would disregard the person's laziness and work hard just to get the grade. To monitor group contribution, teachers would have groups work on their projects during class time. Using class time worked particularly well for the female students because it was the only time they would be able to do their work. Working outside of campus was not possible for the female students due to the traditional rules of the culture. From the class observations, students were observed to be working well and were not complaining about issues of lazy work members. What was observed for the male class was that they were distracted by using their phones, which seemed to be reflecting that the use of technology was more interesting than was working on their projects.

Both the teachers and students had different perspectives on was the issue of time management. For the teachers, they have had past experiences where students have always handed in work late and often had asked for extensions. Teachers felt this was due to the students procrastinating until the last minute. Both students and teachers felt that projects were time consuming however, students felt they needed more time to complete them. The students did not acknowledge that they were procrastinating and this was impacting on their reason for the lack of time. The interview statements differed from what was observed in the class observation period, where students worked quietly their projects and they were well focused and not stressed. This was the last or second to last week of the project and it seemed the students had their project under control and therefore they were not stressed over how much time they had left to finish.

Both groups had different views on how the issue of English proficiency impacted student performance on PBL projects. The students felt confident that their English was proficient enough to complete the project. However, teachers noticed how their students struggled with reading and communicating together. The result was these two factors impacted the students' ability to do their projects. Low English proficiency also impacted student ability to research information, comprehend information and then reproduce it accurately. The result was often students resorted to plagiarising to make up for their weakness in reading. What could be said was that during the observations that no matter which language was used, students were using their language to help them keep themselves on task and on focus with their projects.

One complaint teachers expressed that impacted the students' progress was the students' lack of background experience, not only with Business and IT but in general world skills such as having limited ability to predict, comprehend and work independently. Another skill the students lacked was the ability to solve problems which they often faced during their project. This issue was identified by the students; however, the students would vent their frustrations that group work was difficult or the lack of teacher support was annoying. The class observations did not record the background experiences of the students. This could be considered for future research.

Students and teachers also noted the impact of Emirati cultural rules, which was notably impacting the female students. Teachers noted that the cultural rule of the female students having to go directly back to their homes after attending their classes had an impact on their progress with the project. For the males, they had the freedom to meet up away from the campus to continue their project. The female students overcame this situation by either working in the allocated class time or used social media to communicate to each other, such as Blackberry's BBM. Another issue noted by the teachers that impacted their project was that the female students had limited experience and comprehension of how to attempt problem-solving of Business and IT issues. The class observations prompted this cultural situation as all the female students were participating in their projects during class time, as this was the only time they had to work on their projects. They were often focused and staying on task given that they only had the allocated time to do their project.

4.3 Data and findings from the third research question 3: *What are the levels of engagement of male and female Emirati students with their PBL projects?*

The following section presents the five individual and group observations which took place during the two-week data gathering period. Five of the eight classes were observed as three class teachers did not agree to have their classes observed. The recorded observation data in Appendix M is based on the Behavioral Observation of Students in Schools (**BOSS**)engagement evaluation system. This system is used to evaluate the level of engagement in a class and was chosen because of its well evaluated and tested descriptions of students' behaviour, which can be used to evaluate and describe a student's individual and classroom level of engagement. The third research instrument in this study involved class

observations, where the focus was on the students' level of engagement with their projects. Data were gathered during two weeks in Spring 2012 at the male and female campuses.

Five observations took place: four at the female campus and one at the male campus and the results are shown in Appendix M. There seemed to be a difference in the on-task and off-task behaviour between the genders, and, therefore, this was considered as one interesting aspect to pursue for discussion in Chapter 5. The gender aspect was highlighted in the teacher interviews. From their observations, female students were more motivated and engaged with their studies than their male counterparts despite the similar ratings on the questionnaire.

Engagement Scale Used in Class Observations	
6=	Fully Active Engagement FAE)
5=	Semi Active Engagement (SAE)
4=	Passive Engagement (PE)
3=	Off Task Motor (OTM)
2=	Off Task Verbal (OTV)
1=	Off Task Passive (OTP)
0=	Off Task Active (OTA)

Figure 4.0: List of Engagement codes used in Class Observations

Table: 4.5
Gender of each class

Classes	Gender
Class 1	Male
Class 2	Female
Class 3	Female
Class 4	Female
Class 5	Female

The scale checklist (Figure 4.0) used to determine the students' level of engagement was adapted from the BOSS engagement level scale as it provides a standardised list of predetermined set of behaviours which can be used to rate an individual or group of individuals during a period of time. The individual student selected for observation was not part of the group observations but from a different location within the room. As a researcher observer, I rated the five selected individual behaviours over a period of 3 seconds as recommended by the BOSS instruction notes and then rated the group level of engagement over a period of 10 seconds. I rated the group according to being engaged or disengaged.

4.3.1 Class 1: Individual 1

Student 1 was randomly selected from one group and was given a rating of 4 (passive engagement PE) in the first 5 minutes of the observation. The student was listening to the teacher who expressed his expectations for the class to work in their groups and discuss the material for the project. By the 10th minute, Student 1 was on his phone, and therefore was disengaged from his group (off task motor rating of 3). The student was still on their phone by the 15th minute (Rating of 3, off task motor). By the 20th minute, the student was bored and was talking to another student about issues unrelated to their project work, (2, off task verbal). The readings were still on the table, untouched, unread by Student 1. By the 25th minute, the student was looking aimlessly out through the glass wall to students passing down the hallway (rating of 1, off task passive). By the thirtieth minute, Student 1 was recorded as talking with a group peer but they were looking at individual's phone at some message received on the phone (rating 2, off task verbal, OTV). For ten minutes, (30 to 40 minutes, the student was on their iPhone. For the last ten minutes, the individual was given a rating of 2 (OTV), the student was talking to a group peer but not about the project. By the end of the class at the 45 minute the student had collected their personal things so they can leave class.

4.3.2 Class 1: Group 1

In the first five minutes of class, the chosen group was rated at 4 on the Boss checklist scale, which is passively engaged as they were listening to the teacher's instruction (See Appendix M). By the tenth minute, the group's actions had changed down to a rating of 3 (off-task motor), where the students were on their phones but they were neither talking to each other nor undertaking their assigned project readings. The decrease in engagement continued with the group who were joking together but things were spoken in Arabic and

therefore I could not understand what it was about. The students were rated at 2 (off-task verbal) on the scale at the time of the observation. By the twentieth minute, the joke was over and the students were again concentrating on their phones, which continued for the next fifteen minutes. The group of five students' behaviour ranged from chatting on SMS, social media or viewing Facebook, until the other students came over to the group at the thirty-five-minute point to interrupt the group and ask them to put away their phones and to remind them to get on task. According to the BOSS checklist, when a student is listening to the teacher, an example of passive engagement, this can be rated as a 4. The group picked up their readings because of the close proximity of the teacher and continued being passively engaged with their readings until the end of the observation at forty-five minutes.

4.3.3 Class 2: Individual 2

The observation began with the student being observed listening to the teacher at the fifth minute. This is rated on the BOSS engagement checklist as a 4 (PE) (See Appendix M). The students' engagement with their project increased to a rating of 5 (FAE) where the student was talking to a group peer about the project. The female student at the fifteenth minute decreased her engagement to a rating of 4 because she was listening to a teacher. By the twentieth minute, the student was researching for her project, and therefore was given a rating of 5 (GFAE). This engagement decreased as she listened to the explanation of a fellow group peer (Rating 4, PE). By the thirtieth minute, the member was fully engaged (Rating 5, FAE), because she was talking to all the members in the group about some issue about the project. The student continued being fully engaged with the project because they were writing up the project on the computer and this fell back to a rating of 4 because the individual was talking to the group about a non-related project issue.

4.3.4 Class 2: Group 2

The students were first listening to the teacher's instructions in the fifth minute of the class (rating 4, PE) (See Appendix M). The engagement increased for the first ten minutes (minutes 10 and 15) where the students were talking about their project. At the twentieth minute, the groups had changed their activity to writing up information on their computers but they were still focused on their project (rating 5, FAE). By the thirtieth minute, the students were again discussing their project and this changed by the thirty-fifth minute and fortieth minute where they were again writing up their project on their personal laptops. By

the end of class, at the forty-fifth minute, the students' level of engagement decreased to a rating of 4 (PE) as they were listening to the teacher concluding the class.

4.3.5 Class 3: Individual 1

The individual chosen started with a rating of 4, as they were passively engaged listening to another group member discussing or reviewing what they had done so far (See Appendix M). By the tenth minute the student was working on the project on their assigned duty (rating 5, FAE). The student went through a range of fully engaged activities during the next twenty minutes. At the fifteenth minute, the student was reading their spreadsheet, then writing up information on the computer (25th minute) and talking with a group member by the thirtieth minute. By the thirty-fifth minute the student was reading project material silently which by the BOSSS scale is rated as 4 (passive engagement). This silent reading continued at the fortieth minute of the observation. By the forty-fifth minute the student was participating with all group members where they were talking about the project (rating 5, FAE).

4.3.6 Class 3: Group 3

The group began at the fifth minute by listening to the teacher (rating 4, passive engagement). This was continued by the group listening to the group leader's explanations or opinions about the project at the tenth minute (See Appendix M). The level of engagement rose to a rating of 5 because the group was discussing project issues. By the twentieth minute the level of engagement had fallen to a rating of 4 (passive engagement) because the group was listening to the teacher giving light group advice. By the twenty-fifth minute, the level of engagement had risen to FAE, as the students were working on the project, such as by sharing resources or opinions. This continued through to the thirtieth minute. By the thirty-fifth minute the level of engagement was interrupted by the teacher giving advice to the group as they were having issues agreeing. By the fortieth minute the students were writing up their project (rating 5, FAE). This activity continued and concluded the observation by the fortieth minute (rating 5, FAE).

4.3.7 Class 4: Individual 4

The individual was observed to be listening to the teacher at the fifth minute (rating 4, PE) (See Appendix M). This continued with the student listening to another student asking the teacher questions at the tenth minute (rating 4, PE). The student's level of engagement increased to 5 (FAE) because they were discussing some project issues with the

group. For the next fifteen minutes, the student was fully engaged by working on her computer (minutes 20 to 30). By the thirtieth minute, the student's level engagement had dropped to 4 as the student was required to stop their work to listen to the teacher's explanation. The individual's level of engagement increased to 5 (FAE) by asking the teacher a question and this continued by the student working back on the writing of the project on the laptop at the forty-fifth minute.

4.3.8 Class 4: Group 4

The group began by listening to the teacher in the fifth minute. This was rated as 4 (PE), and by the tenth minute the group was working at full engagement analysing notes for the project interview (FAE) (See Appendix M). From the fifteenth and twentieth minutes, the group was fully engaged sharing and discussing the interview project notes. The level of engagement fell to 4 by the twenty-fifth minute as the teacher came over to interact with the group and guide the students over an issue they were having. There was some in-group fighting and the teacher needed to intervene before the observation took place. By the thirtieth minute through to the thirty-fifth minute spot check observation, the group was working on their personal laptops writing up their project. By the fortieth minute, the activity had changed but the level of engagement had not. The students were discussing together and this discussion kept going through to the forty-fifth minute (rating 5, FAE).

4.3.9 Class 5: Individual 5

The individual started by being fully engaged by talking with their group members about the project (rating 5, FAE) (See Appendix M). The individual was having difficulty or seeking help by the tenth minute and sought assistance from a group member. By the fifteenth minute, the student had changed their activity by preparing their PPT (rating 5, FAE). The level of engagement fell to passive engagement because they were listening to a group member share some opinions about the project (rating 4, PE). During the twenty-fifth minute, the level of engagement was interrupted because someone entered the classroom to share some important information (rating 4, PE). From the thirtieth to the fortieth minute, the student was busy working on this project PPT. By the fortieth minute, the level of engagement fell to a rating of 4 as the student was closing their computer and discussing a non-project related issue with the group.

4.3.10 Class 5: Group 5

The group were observed at the fifth minute listening to the teacher (rating 4, PE) (See Appendix M). The group was discussing the project at the tenth minute (rating 5, FAE). At the fifteenth minute, the level of activity was rated by the BOSS checklist as being 5 (FAE), as the students were busy writing up some research or reflections about the project. This was continuing during the twentieth minute. At the twenty-fifth minute, the students were working and discussing the business spreadsheets they were analysing. This continued through to the fortieth minute, but, the level of engagement decreased to a rating of 4 (PE) because the group was listening to the teacher giving them feedback and recommendations on their work he was reading.

4.5. Summary of the observation section

The data in Section 4.3 supports findings in response to research question 3:

> *What are the levels of engagement of male and female Emirati students with their PBL projects?*

For the small male section, it was observed that often the individual and the group were not concentrating on their project but were distracted with technology. For most of the female groups observed, individuals and groups were concentrating on their projects. Most of the groups were reaching an engaged scale of 4 or more, reflecting an active interest in their PBL project.

4.6 Summary

From the student and teacher questionnaires and interviews, as well as the observations, the following results have been found:

- Students and teachers agreed that PBL was helping the learning of Business and IT knowledge. (Tables 4.1, 4.2, 4.3, 4.4. and 4.5 Statement 1)

- Students and teachers agreed that the pedagogy was keeping students' interest in their learning. (Table 4.1, Statement 2). From the observations, for Groups 2 to 5 (Appendix M), the students showed a high level of engagement with their projects, which reflected an interest in what they were researching and learning. However, for the observed male class, (Group 1, Class 1, Appendix M), the students were not engaged with their projects.

- Students and teachers agreed that the pedagogy was helping with skill development. (Tables 4.1, 4.4. 4.5 (Statement 3))

However, there were times that the data revealed different outcomes between students and teachers on certain issues. The interviews revealed that students felt they did not have enough time to complete their projects. The teachers however felt the students had enough time to complete the projects. However, the teachers noted that students handed in their projects late and incomplete. The teachers put this down to the students' procrastination. Students felt their level of English was enough to complete the projects.

This chapter has presented and analysed three different sources of data concerning student and teacher attitudes to PBL and projects. The first and second research questions were answered with analysis of quantitative data from the questionnaires and qualitative data from the interviews. Chapter 4 began with a thematic summary of the student findings followed by a presentation of data from the student questionnaire, where Section 4.1 shows total raw scores, the similarities between the male and female responses and then responses to PBL projects from students in both Business and IT courses. The section ended with a short analysis of the themes identified from the student interviews. Section 4.2 followed with by a short thematic analysis of the teacher interviews, then the teachers' responses to the same questionnaire as students with their views of their student's involvement with PBL projects. Data for the third research question were presented in Section 4.3., where male and female individuals and groups of students were observed for their level of engagement with their PBL projects.

Overall, the individual observations confirmed the findings of the group observations in the female classes, where students were often seen to be highly engaged with their projects. PBL projects were found to be satisfying and this was endorsed by their teachers, but there are challenges presented by doing projects. Chapter 4 has presented an evaluation of PBL by both Emirati students and their teachers in how they perceive a newly introduced pedagogy within UAE tertiary education and how they perceive its integration. The results in this chapter have given an opportunity for both respondent groups to voice their impressions of PBL pedagogy. Chapter 5 follows, where a discussion of the student and teacher views on PBL are presented using data reported in Chapter 4

CHAPTER 5: DISCUSSION

5.0 Overview

PBL is a pedagogy which has been included in UAE tertiary education courses and classes to provide Emirati students with opportunities to access twenty-first century skills such as problem-solving and forward thinking that Al Rasbi, (2014) identified as significant advances for higher education institutions. This study has identified how well new pedagogies in particular problem-based learning are being received in UAE higher education by Emirati students and their teachers by focusing on their 'voices'. Though the pedagogy has been well received by students, there are challenges with its implementation. One way to understand the performance of pedagogy is through evaluations from student and teacher perspectives. Understanding their viewpoints, tertiary education course planners can gain insight into how well the pedagogy is performing in subjects such as Business and IT. The current study focused on UAE Emirati vocational-based students and their expatriate teachers' experiences and conceptions of PBL pedagogy. A primary aim was to give these two groups a voice in how effective they considered PBL to be and to share their positive and negative perceptions. Gaining an indication of student and teacher responses to PBL offers an understanding of how well they received the pedagogy in their Business and IT classes. In addition, it provides valuable information for course developers on how well PBL programs are working in higher education courses. Analysis of those responses allows insight into any potential mismatch between what is taught to the students through PBL and what the course developers expect students to achieve. In a period of urgency, many UAE tertiary education institutions have moved to incorporate PBL into courses such as Business and IT as a solution to producing graduates who are creative, can think critically and analytically, and can solve problems.

The purpose of this chapter is to elucidate how the results reported in Chapter 4 of this investigation compare to previous pedagogical research that evaluated PBL in other contexts. The first two sections of the chapter (5.1 and 5.2) discuss the first and second research questions, namely what students and teachers like and dislike about PBL. The views of Emirati students and teachers are discussed together because both groups held similar views, and this stylistic approach avoids repetition in the discussion. The chapter identifies how both groups in this study viewed Problem-Based Learning used in Business and IT classes adding to previous research in the field, raising issues faced about the use of this pedagogy in UAE

higher education. The third section (5.3) discusses similarities and differences between male and female student levels of engagement with their PBL projects as an indication of the degree to which the students valued the pedagogy.

5.1 When PBL projects are preferred by students and teachers.

The following section discusses the positive findings from Chapter Four where students and teachers agreed that PBL was engaging and interesting (Section 5.1.1), that students felt PBL aided their learning (Section 5.1.2), that the pedagogy could motivate Emirati students (Section 5.1.3) and that sections of the student cohort liked PBL group work (Section 5.1.4). Further, Section 5.1.5 demonstrates strong agreement in that students appreciate PBL because of an improvement in their skill development and 5.1.6 informs how PBL helped students make connections to real world learning.

- **5.1.1 Students find PBL stimulating**

Project learning has been attributed with making learning more stimulating and interesting for students because it is providing more interactive alternative activities which are not based primarily on memorising facts or a teacher dictating the lesson. Students and teachers felt PBL made learning more stimulating and the majority of the students agreed that PBL projects made their learning more interesting. They expressed satisfaction with PBL project assessment, more so than if they were learning through traditional means. The teachers also considered PBL was stimulating their students' interest in learning their coursework while students were of the opinion that PBL energised their learning. For example, Student 10 saw the PBL project she was doing was making connections with her place of employment where she was also using spreadsheets.

PBL created a more diverse and thrilling learning environment as was seen from the class observations where the majority of the students were engaged, stimulated and motivated in their group work being on-task and focused on what they were doing. These findings are consistent with Alkhuwaiter, Aljuailan and Banabilh's (2016who attributed the stimulation these students experienced to a range of activities such as group discussions, paired research and presentation planning. Such activities make learning more enjoyable and kindling student motivation to learn. Alkhuwaiter et al. (2016) also concluded, as has this research, that students find the PBL process more stimulating than lectured based learning. Similarly,

Khaki et al. (2007) found that among the participating Iranian first-year medical students, a high number of the female students reported that their interest in learning and their enthusiasm to participate in the PBL project had increased because of the project. Those Iranian students reported their interest in learning was more than what they had experienced in past lectured-based classes in their medical training course. Since both studies were based in Middle East and both studies comprised a high proportion of female studies, it appears that female Middle East students find PBL activities are interesting through opportunities to become active in their learning. In contrast, previously they were passive and felt bored with teacher-directed teaching and learning that is often found in many Middle East education institutions (Souleles, 2013). Mohd-Yusof, Hassan, Jamaludin and Harun (2013) reported that among Malaysian engineering students, participation on PBL projects, students showed a significant increase in their level of interest in learning, which in turn encouraged the students to feel more motivated in the course.

Since teachers in this research shared similar opinions with their students that PBL was stimulating, this contemporary evidence supports the practice of PBL assessment continuing in the Business and IT courses. Teachers recognised the benefits of this pedagogy for their students because it kept them focused. Students who are stimulated to learn are more likely to keep being interested in what they are learning. This finding of focussed stimulating learning in a Middle Eastern context is broadly consistent with studies by Ma, O'Toole and Keppell (2007) and Aboonq (2015) in which the teachers felt that PBL was effective, making the students happier with their learning.

Since students were reported as finding PBL more stimulating than traditional courses work, the implications are that this pedagogy should be incorporated more into UAE higher education courses. Students were not bored by having to write essays and attend lecture based classes which are passive in nature. PBL stimulated these students by having them investigate real issues which were set in real-world situations. These students have had to meet with a local business or an IT team and learn what real problems exist in these fields. These professionals would have shared experiences that will stimulate the student's interest. The stimulation is extended further because they had to comprehend what the problem was and then find ways to solve the issue. Students were not sitting passively but actively engaged.

5.1.2 PBL aids student learning.

Another finding of this study is that the students have voiced an appreciation that this pedagogy aided their learning of Business and IT. Students felt PBL improved their learning, and this was confirmed by the teachers who commented that PBL gave their students better learning opportunities. The high level of observed on-task behaviour during class observations implied that the students were learning. Similarly, Seluk (2010) demonstrated that Turkish pre-training physics students agreed that their learning of physics improved with PBL. Erdemir (2009) and Selcuk (2010) both focused on science-based subjects, while the findings of this investigation found similar results for PBL used in the subjects of Business and IT in a Middle Eastern tertiary education institution. Likewise, Alajmi (2014) study found that first-year female Emirati dental students agreed that the learning of dentistry was better through PBL. In all three studies, it was found that the quality of learning through PBL was judged by students to be better. Furthermore, this study confirms a number of studies such as Hwang and Jang (2004), Pingvini and Shahsawar (2013), Saalu et al. (2010), Khalil, Irshad and Abdulghani (2015) and De Wet and Walker (2013). All of these studies acknowledged that students felt their knowledge had improved because of PBL. As with this study, the students have voiced a positive opinion about their appreciation of PBL, as they recognise its relevance and the learning opportunities rejecting preference for other forms of learning such as lecture based classes and textbooks.

Students in this study seem to indicate they were happy with the quality of learning they achieved with PBL. The pedagogy may have given them confidence that the way they were learning through the PBL assessment was giving them practical knowledge that had real meaning which they could apply further outside in future employment in these fields. This finding concurs with Erdemir (2009), whose study of students in secondary school physics felt that the quality of learning was better through PBL, as did Habok and Nagy (2016) who found that elementary and secondary school teachers used PBL because it improved learning quality. Ganiron (2014) found that Saudi engineering students voiced agreement that the quality of learning was better through PBL given they had to be analytical in their engineering projects. His research was based on Engineering students in a Saudi university, but irrespective of whether students' beliefs pertain to engineering, Business or IT, they are still relevant to the issue of the educational value of PBL. Student belief that a particular pedagogy is improving their learning in the subject provides some indication that

they are valuing it. Though Ganiron used a different way to investigate students' beliefs, both studies reflected is the value-adding by helping students improve their learning, thus encouraging any decisions by curriculum implementers to expand PBL into other curriculum subjects in the UAE tertiary sector. Students felt they were developing their knowledge by interviewing local business persons and IT teams as they investigated the problem of their project in their search for possible solutions. By having the opportunity to learn practical knowledge from more knowledgeable and experienced people allowed students to ask questions and gain insights into problems and solutions as they exist in these fields in the real world. The students got to question experts in their field of expertise, and to discuss and debate their potential solutions to the problem. Authentic interaction with professionals in the field is indicative of Vygotsky's theory in practice, as real-world action. This level of interaction and knowledge building would not be realised in a teacher-directed class. Learning through PBL has become an interactive activity which requires hands-on researching requiring group discussions, interviews and development of a position.

Since students have stated clearly that they have found PBL an effective pedagogy which has aided their learning of business and IT, it appears that the pedagogy has value in UAE higher education. This pedagogy offers an approach, which has been adapted to teach a range of subjects including engineering (Warnock & Jean Mohammadi-Aragh, 2015), medicine (Amoako-Sakyi & Amonoo-Kuofi, 2015), business (Gharbi, Bellakhdar & Mrabet, 2015) and IT (Stozhko, Bortnik, Mironova, Tchernysheva & Podshivalova, 2015). Since the pedagogy is adaptable to a variety of courses, and with the high level of approval by students and teachers in this study, incorporation of PBL in UAE higher education is important.

5.1.3 PBL motivated Emirati students.

The PBL pedagogy has been attributed to helping motivate students (Lam, 2009; Mohd-Yusof, et al, 2013). This study adds the evidence that group work motivated students to be focussed and engaged. The types of activities used in projects that motivate students requires further research. Other researchers have been more conclusive that PBL motivates students. Lee and Lee (2011) found with second year business students through their self-reflection with their PBL experience that they were more motivated in learning about Human Resource management. Students also felt more motivated because of working together in teams. Group work allowed them to share and discuss ideas, and through this the sense of

community motivated the students further. Also, teamwork was reported by the UAE students as favourable this current study as did Walsh (2010) in that students were motivated because they could work collaboratively and could make their own choices through the PBL process. Though these students did not use the word "motivation" in the interviews, there was a high level of agreement expressed as enjoyment of having freedom to make personal choices when doing PBL projects. Gok and Silay (2008) showed that PBL improved Turkish students' attitudes to learning science, which in turn motivated them. In that study motivation was attributed to students striving to achieve a high grade and in this study the PBL project was used for assessment.

Motivation was considered important in maintaining student engagement in the Nuutila, Torma, Kinnunen and Malmi (2008) study. Without it, students became frustrated and demotivated. From the perspective of Biggs and Tang (2007), students who felt the project task was worth undertaking, they were motivated to undertake it for their own self-interest and success. However, when the task proved difficult or lacking in perceived real value, Biggs and Tang (2007) found that students became disinterested and demotivated. Those specific questions were not asked of students in this research, so future research is required to identify an explicit understanding of the role of motivation of Emirati students and their PBL projects. If motivation can be linked to improve their participation, then this will be highly valued by UAE university course planners. Should future research demonstrate a positive relationship between Emirati students undertaking PBL for its learning potential and for their personal future success, then this study contributes to the field of PBL within the UAE. What is important from this study is that students were engaged in their PBL projects as indicated by the in-class active behaviours although reasons were not clearly identified. A perception on the part of both students and teachers that the projects were motivating was expressed in the questionnaires confirming other research that motivation is an important factor in enhancing student involvement with PBL

5.1.4 Group work is liked

PBL teamwork was approved by the Emirati and rated highly by both genders in both courses by students participating in group work. All eight teachers also supported PBL group work outcomes when it appeared that group work as an activity enabled their Emirati students to complete the projects. One teacher recognised that they learnt leadership skills and another teacher that students learned how to be team players

Group work and group discussions are an integral part of constructivist-based pedagogies such as PBL. The projects encourage students to seek information for themselves and from their group peers. Constructivism helps explain how the Emirati students could construct their Business and IT knowledge by interacting with their group peers, because they were sharing their previous knowledge and experience. This activity acts as a representation of the zone of proximal development identified by Vygotsky (1978) in which students build on their knowledge of Business and IT because of the support of more knowledgeable peers working in the group with them. The students benefit from opportunities to address misunderstandings and clarify misconceptions when regrouping for each new session. Gaining clarification in what they have achieved and areas that they need to pursue further for the project is part of constructivist thought.

This research using a mixed methods approach with Emirati students confirmed the Bentley and Warwick (2013) pre- and post-questionnaire study in which UK students felt more satisfied working in groups. It should be noted that the present research took place in a Middle Eastern environment in a culture with a social tendency group consultation compared with the prevalent Western practice of working independently. Emirati culture is "tribal in its mentality" (Saudelli, 2016), even in today's world, which strongly influences Emiratis' tendency to work well with group work acting as a natural reflection of shared cultural practice. Local research on an alternative campus of the same institution conducted by Boukhobza and Hajjij (2014) found Emirati students liked group work in a leadership course. The present research now extends their findings by identifying how the Business and IT Emirati students reacted positively to group work in their courses.

Group work plays an important part for those students who see it as helping to escape constraints which affect daily life. One section of the Emirati students made clear from the questionnaire and interviews that they enjoyed group work. For those female respondents, group work was a social outlet allowing them to be with friends and to build on classroom relationships while undertaking Business and IT coursework. What students meant by social aspects was that they liked being able to participate in groups made up of other female members. Much of the sample consisted of female students, and while this result reliably reflects their views on group work, caution is urged in the reading of the results due to the relatively small cohort.

Nonetheless, the Al Rasbi (2014) study found that Emirati student respondents valued doing group work for the learning, support and guidance it provided. Although their study did not differentiate on the variable of gender in another study Emirati females valued group work for its opportunities of socialising. One explanation given by Saudelli (2016) for why female Emirati students participated well in group work was the added sense of female empowerment. Women were encouraged generally to work hard for their country in a patriotic sense as well as to work hard to support their future family life. Mohammed and Zaid (2014) and Saudelli (2016) confirmed that female Emirati students value the group work component of PBL in situations where it loosens cultural restrictions on participation. When female students are given an opportunity to escape their cultural restrictions and function in an environment which allows them to interact, they feel empowered and gain a sense of personal freedom. Dahl (2009) also pointed out the power and influence of the local culture and religion on the daily and educational lives of Emirati students and how cultural and religious factors affect both genders. In Western countries, Arabic values may not be so prevalent or recognisable, but in the Arabic world, they are apparent in daily life. Female students cannot leave the campus until a family member comes to get them, and they cannot visit the local mall without a maid or brother as a chaperone. In some ways, PBL gives female students an avenue of escape from such cultural controls because within their groups, students can work together and not feel divided by cultural or tribal rules. Group work provides an alternative for female students from the principles of learning in secondary school, providing further access to discovery and creativity that did not occur in secondary school.

Teachers viewed PBL group work as something their Emirati students could benefit from as the students worked together naturally. Benefits teachers identified included group collaboration, support when problems arose and the sharing of resources. Though not all students agreed that group work was beneficial to them, their teachers noticed the activity as an essential part of their students' personal development. Teachers viewed group work as offering students skills and situations which would not arise if they were taught in a teacher-directed class. This finding is consistent with that of Habok and Nagy (2016), in which teachers recognised that there were benefits of PBL group work for their students. Teachers saw the students' PBL projects as helping them progress through group work and gain improved results. Similarly, teachers saw that PBL group work gave their students experiences in how to participate and handle interactions. They realised that the students did

not have much experience in group work but they saw the positive benefits that students gained from working in teams.

On the other hand, some teachers witnessed their students being frustrated with group work. One reason given for frustration was that the students had limited experience working in groups. Similar findings were made in the studies of Hofmann and Mercera (2015) and van Barneveld, Strobel, and Light (2012), with teachers observing that their students struggled with group work. Hasna (2009) noted that Emirati students were generally not independent and often sought support and advice from their teacher. Teachers felt this situation constantly drained their time and energy. By extension, the teachers in the Business and IT classes in this study suggested that seeking teacher advice was the result of the impact teacher-directed pedagogy on their students during their earlier UAE secondary school experiences where they did not have group-work experience. The students had come to Western-based tertiary education institutions where group work was an expected and essential part of how information is learned. Teachers who were in the Business and IT classes were aware of those past limitations and the impact on students' ability to participate in PBL group work. The greatest issue for the teacher was timing when to aid students and how to determine the best times and ways to intervene.

Emirati students' enjoyment of group work may have been related to a range of factors. The notion of intrinsic motivation provides one explanation, with the students willing to participate in groups because they personally enjoy doing the activity as the group context stimulated their interest. In addition, the students might also have been motivated extrinsically to achieve tangible rewards such as getting a good grade or intangible feelings of praise for being a contributor. The efficiency value theory could also help explain that the groups of students were motivated to undertake the activity because they recognised that in doing group work, the work was spread out amongst members and less effort was required individually having to do the work on their own. Students in this study seem to have positive perceptions of their competency in PBL projects and that by completing the project as a team was better than working on one's own (see result for Statement 8, Table 4.8). This success may be influenced by how the students perceived their social environment and by having a positive attitude towards PBL group work. Students may have viewed group work and problem solving as constituting a happy learning environment, with the students' interactions reflecting a willingness to learn and succeed.

The finding that both teachers and students recognised the benefits of group work suggests that the PBL pedagogy is working well within UAE tertiary education. The benefits of PBL working well were that the teamwork skills created in Business and IT helped the students to embody the same principles of professionalism and values when they reached the UAE workplace. Though the groups were constructed according to gender, the respondents demonstrated acceptance and satisfaction with PBL by recognising the value of working well in groups. Instead of being confined by rote learning, as undertaken in a teacher-directed approach, the students saw that group work gave them the benefit of sharing responsibility and workload, and that such work allowed deeper learning. Another benefit was that working in teams was more motivating, as each student had to meet the expectations set by the group members.

5.1.5 Students appreciate PBL because of skill development.

A number of skills can be developed by students because they are participating in PBL (Robinson & McDonald, 2015). In this study, students reported they thought their group skills, interpersonal skills and communication skills, were being improved, acknowledging that their ability to communicate ideas more freely was occurring because of the group interaction opportunities experienced as a result of the PBL assessment. They also agreed that PBL was improving their time management skills. Although time management skills were not clearly evident to the observer-researcher, the students' steady progress towards completing the project improved as the completion date was nearing for the presentations to take place. They did voice concern that they needed more time to complete their projects. The teachers did acknowledge that PBL exposed students to more skill development especially their research, communication and writing skills, as Chin (2014) had previously found. PBL improved student skills in communication skills and in other areas such as critical thinking.

Since students and teachers have implied that PBL is developing a range of meta-cognition skills, the pedagogy is showing its usefulness in being incorporated in these Business and IT classes. Skills these students learned during this period of PBL assessment is part of their lifelong learning development. The students started to understand what it means to balance their work schedule, how to communicate effectively without being abrasive and what it means to work within a team.

5.1.6 PBL helps students make connections to real world learning.

Students are more engaged when learning relates directly to the world they live in, and this is assumed to be an outcome of PBL (Alrahlah, 2016). The Business and IT Emirati students found that the PBL pedagogy was giving them insights into how they could apply what they were learning. Two students mentioned that their learning of spreadsheets for a business project had real-world application and meaning for them. Similarly, the teachers felt that PBL was giving students access to real world experiences and this was the benefit of incorporating the pedagogy in their courses.

Giving students opportunities in real-world situations is stimulating and is not mundane as in a teacher directed learning environment. This study has demonstrated an authentic application of the Zone of Proximal Development from Vygotsky. Providing students with access to real-world situations such as local businesses and IT teams, to students can interview, question and gain advice from "experts" in their specialised field. These "experts" are able to inform, teach and advise students who are less experienced and knowledgeable but desire to be employed in Business/IT. Similarly, 239/252 Brazilian medical students agreed that using subject experts were preferred as instructors for building knowledge (Couto, Bestetti, Restini, Faria-Jr, & Romao, 2015). Students actively learn from experience how to work in a team in which they have previously struggled. They may get advice from their teacher or their local expert in how to solve team issues. When these students reach their place of employment, they are going to have to work as a team member, so having previous experience with team dynamics, collaboration and team communication in their previous experience in PBL places them at a slight advantage. All the issues they had during their PBL group work can and will be experienced in a Business/IT team. Therefore, by having strong advice and support by their project local "expert" or teacher, they can help expand their ZPD in many areas, such as leadership skills, group failure and how to main group unity.

5.2 Issues which detract student enjoyment of PBL

The following section outlines some of the problems identified by both students and teachers about why PBL was problematic for them. In this study, several indications came from the questionnaire that students were struggling with problems in projects, yet not a clear insight into what the problems were related to frustration and difficulty of the project tasks. The difficulties were exacerbated by the length of time taken to complete a project (5.2.1),

levels of group participation (5.2.2), the lack of support from the teacher (5.2.3), insufficient English proficiency (5.2.4), the lack of essential background experience and skills (5.2.5) and lastly, the impact of the local culture (5.2.6).

5.2.1 Time management is a struggle

Researchers such as Habok (2016) and Kilroy (2004) acknowledged that PBL class work or assessment was time consuming. Tarnvik (2007) also acknowledged that teaching in a more teacher directed approach was less time consuming and indicated this was the reason that students preferred a teacher-directed pedagogy over PBL. In this study, nearly three quarters of the respondents found projects time consuming while the teachers blamed poor time management skills and procrastination of the students. Frustration therefore became evident. Better time management skills are required in such a way that students understand management of time on projects more successfully.

The Emirati students struggled with time management in their PBL projects, and particularly with submitting work on time. The researcher's observations confirmed that the Emirati students struggled to complete work on time, and noted the pressure they felt to complete projects on time, thereby creating frustration for both males and females when participating in PBL projects. Male students complained in the interviews that they found it difficult to complete projects on time because of work and family responsibilities, an observation confirmed by both Hatherley-Greene (2014) and Daleure et al. (2013). Miqdadi et al. (2014) added that male tertiary students struggled with time management because of a lack of early exposure to good time-management skills in secondary school education. Gaining an understanding of the cultural expectations that are common for male students and how those expectations affect students' ability to manage their time is important. Cultural expectations such as family obligations and work have an impact on the ability of male students to manage the time they have available to complete a project. Given this situation, more time may need to be given to those students to complete their PBL projects. Alongside male students, female Emirati students felt they struggled with doing projects because the projects required too much effort and they did not have enough time to complete them. Teachers, on the other hand, felt that their female students struggled with time management because they procrastinated until the project was due or had very little skill in managing their personal time. Female students were struggling to complete projects on time, which indicates that they needed greater training in how to manage their time, which is similar to the

conclusion made by Chowdhury (2015). It could be expected that the female students would have had better time management skills because they were confined to their university campus, which is a cultural expectation, and they are not pressured by family expectations as the male students were. However, as Rapanta (2014) pointed out, the cultural value of time for Emirati students influences how they approach the completion of tasks. She explained that they view time holistically, and it is common for them to undertake a range of tasks at the same time. Furthermore, Rapanta noted that Emirati students of either gender place greater value on their time spent on their family and religious duties than they do on what is required in the classroom. Therefore, even if the students are undertaking a class, receiving a family phone call or the occurrence of a family emergency during class time is still a priority. If family demands dictate the student's attention and time, those family issues take priority over any PBL project work. Thus, it is common for teachers to hear family circumstances as a reason why projects were not completed, along with a demand for a time extension. This reflects how significantly the culture of the Emirati impacts on daily living.

Both male and female Emirati students struggled with time management. This was confirmed by Khatib (2014), who found that in a mixed-gender group of 352 Emirati students, much of the total sample lacked sufficient knowledge of how to manage their time. Both studies showed that if an Emirati student was struggling with time management, the struggle affected other factors such as the student motivation, project engagement and successful completion of the project. Believing that a project is too time consuming or that they lack the ability to manage their time also affected students' enjoyment of a PBL project. The outcomes of time mismanagement as proposed by Eccles (2007), in that if students expect that their performance when doing a task to be a struggle, they lose interest and become frustrated. Students identify limited time as an issue, which has a negative impact on their ability to complete a project which, in turn, adversely affects their progress and enjoyment in doing projects. Students were willing to blame their teachers for not allocating sufficient time in the schedule to complete the project.

Teachers saw the issue differently. In their professional capacity, teachers believed that they had allocated enough time for the project assessment to take place while the students considered the time inadequate. Thus, even though explored and debated, the time allocation issue remains a factor affecting students' ability to see the value of doing projects and to be fully engaged in tasks. These considerations suggest that time management skills should be learnt earlier in UAE secondary school.

Another way to see the issue is that PBL presents itself as a time-consuming activity for most Emirati students, no matter the gender, and thereby creates a difficult situation for the students to manage. PBL is based on constructivism and because of this; it means the activity is time-consuming. Matching the issue of time management to the theory of constructivism requires a short discussion on how these two concepts are connected. Though the theory of constructivism is based on constructing knowledge and meaning from our experiences, it has been used by course advisors such as Boyaci (2014) to explain classroom management.

Boyaci's viewpoint on the use of the theory and time management suggests that the teacher has tools to solve the time management problem. His explanation shows that being educated through a constructivist approach, such as is the case with PBL, involves student activities such as group meetings and research, social processes and the sharing of peer perspectives, all of which need effective time management. Within a teacher-directed framework, a teacher will control the length of time given to present content, such as an hour for a lecture that focuses on a theme or relevant theory. Within a PBL environment, students will take longer to research, contemplate and prepare the knowledge they are researching. Group work is another time-consuming activity, which adds further pressure and dissatisfaction for some students about finding PBL a viable activity. A constructivist-based classroom can look messy and chaotic (Boyaci, 2014). In such classroom settings, learning is occurring, but that does not mean that all goals will be completed within a specific time. PBL is a time-consuming activity which requires students to be creative and this requires careful time management skill development, which is one challenge that students in this research found difficult.

Teachers stated very clearly that their Emirati students struggled with time management, resulting in students often asking for extensions. Teachers realised they were in a position where they could offer help and assistance to overcome problems brought about by procrastination and last-minute rushing. One solution teachers used was to split a project into manageable parts, with students able to address and achieve each stage. Studies such as those of Miqdadi et al. (2014) and Hasna (2009) also identified that Emirati students struggle with time management and lack essential time management skills. Those studies found that the problem also affected student

assessment grades as did Winston, Van Der Vleuten, and Scherpbier (2012), where teachers had an essential role in helping inexperienced medical students who lacked essential skills in time management. Similarly, it has been found that teachers play an important part in supporting Emirati students with their time management struggles that they believed originated in the UAE secondary school system. This system follows a rote learning, teacher-directed focus, and the negative consequences from that approach follow students when they enter into UAE tertiary education (Dahl, 2009). What has been identified is that students lack strong time-management skills, which limits their satisfaction with and progress in PBL projects. This circumstance shows that greater teacher support is needed to improve students' satisfaction with participating in PBL pedagogy.

It seems what is being highlighted is that there are a range of issues which impact Emirati students' progress with time management. Firstly, if there are cultural or family expectations, these will take priority over any classwork assessment. Secondly, students are not taught how to manage their time during their time in secondary school and thirdly, they require training in how to allocate time for schoolwork, family issues and when to relax. To help address this range of problems, the teacher needs to train the students in mastery skills, giving them coping strategies to help ensure success. Once students are trained in time management, they will be better able to withstand difficulties of stress and anxiety that can be caused by not managing their time properly.

Thus, the teacher must set guidelines to ensure that students are given controlled environments in which to experiment and from which they can learn, but they must not be allowed to fail. As argued by Kirschner et al. (2006), in instructional approaches such as PBL, where teacher intervention is minimal and students dominate the control of the project, there is still a need for teacher guidance. Kirshner et al. argued that teacher guidance or intervention can recede only when the learners have gained sufficiently high prior knowledge which can provide internal self-guidance. Such teacher guidance becomes essential in cases such as found in this research, where it is acknowledged from the teachers' perspective that students are not sufficiently independent as reflected in their lack of time management skills. Therefore, the students need a PBL pedagogical approach that includes strong teacher

support and intervention. One explanation for students requiring so much support in PBL is the change of role for the teacher. Teachers are asked to take the role of facilitator and not as a direct giver of knowledge. This change of role means that regarding a project, the teacher gives guidance and advice and provides research resources, but intervenes only when group work is floundering.

5.2.2 Dislike of group work

Not all students felt that group work in PBL was a rewarding experience. Most students felt that PBL projects were difficult and problematic. The dislike for group work came from the student discontent with non-contributing members and having to take over and compete the work that was incomplete an indication that students were prevented from enjoying PBL because of the nature of the course assessment. From this study, knowledge that non-contributing group members impacted other students' satisfaction with PBL means that teachers can plan in the future for this situation and develop strategies to ensure that all group members contribute thereby making the experience more rewarding than was being experienced during this research. Groups can fail, and the knowledge connection can be interrupted by group dysfunction. One important element of constructivist thought is that for knowledge to be built through peer collaboration there needs to be positive student-student relationships (Dollard, Christensen, Colucci & Epanchin, 1996). Effective group work functions through the existence of trust, respect and understanding in a constructive environment. Constructivism in action means that peer members see themselves as belonging to the learning process, where they feel valued and important (Dollard et al., 1996).

As previously noted in Chapter 2, research conducted by Burdett (2003) and Allan (2014) showed that groups failed in PBL for various reasons, including irritation caused by a non-contributing member. Those studies found that such group failure contributed to students not wanting to participate in the pedagogy again. This research made a similar finding in that some Emirati students' enjoyment in participating in PBL pedagogy declined when group work failed. One group of student respondents felt that it was difficult to participate in group work due to having to carry members who were not contributing to completion of the project work. This kind of situation is well documented in previous studies which found that free-riding or non-contributing students in groups had a detrimental effect on group dynamics, which led to group dysfunction (Davies, 2009; Hall & Buzwell, 2013). Saudelli (2016) found from her Emirati female cohort that non-contributing members delayed project progress and

created more group infighting. The Dendane (2007) study of Emirati first-year mathematics students at a UAE University found similar results, in that some students did not like participating in group work due to frustration with non-contributing group members and a clash of personalities. Such a finding has implications for the effectiveness of PBL for some Emirati students because group dysfunction may impact on their satisfaction and engagement with the pedagogy. Evidently, in the light of this and other studies, free-riding in group work appears to be a global phenomenon, across disciplines and nationalities.

One possible explanation of group work failing is that members identify personal self-interest issues which impede their perception that they might get something out of the group work. Another possibility is that group work is rejected because disinterested or reluctant students are not confident in doing the task because of self-insufficiency. Students may also believe that the PBL task is not worth pursuing because it has no value, which leads them to become non-participants and non-contributors.

An explanation given by the teachers for a cohort struggling with non-contributing members was that the students lacked experience of learning in groups. This explanation is consistent with the view of Burt (2004), who attributed Emirati student conflict in group work to inexperience with such contexts. An explanation given by Ridge and Abdulla (2011) and Hatherley-Greene (2014) was that Emirati student group inexperience is due to Emirati students transitioning into the Western-focused student-centred learning ideology used in UAE tertiary education courses. Group work is not an essential part of secondary school courses (Ridge & Abdulla, 2011) because that environment is dominated by rote learning methodology, which has a more individualistic focus. What has been learned is that group work is a struggle for some students and better support is necessary within UAE tertiary education settings. What shape this support needs to take is discussed in Chapter 6.

The teachers of this inquiry also observed the fallout of the loafing student, but the reaction to the situation they saw from the Emirati students was quite different from what is likely in a Western classroom environment. They noted that the other group members would continue to work with the student to ensure that the student received a passing grade, which could be described as “no peer student left behind.” The cultural mentality of the Emirati student group has also been observed in cases where the class protests if the teacher tries to mark a late student absent or cries for an extension when work is not ready to hand in on

time. Being caught sharing exam answers or essay writing during an examination is not viewed as cheating by Emirati students but is regarded as “helping each other, teacher.” When these situations arise, it seems to reflect a cultural mentality among Emirati students that supporting weaker or lazier students is beneficial and the right thing to do. This could be due to national patriotic pride in supporting each other as an Emirati or due to what is perceived as a religious cultural duty. Either way, there seems to exist a cultural element of peer support for the loafing student, even when group dysfunction occurs. This cultural element seems to stem from influences including a strong group focus within the tribal family and Islamic expectations of supporting a brother or sister in trouble. The Emirati culture is very group oriented, which is reflected in students’ reactions to group work, even when one member is not contributing. In Western-based culture, the reaction would likely be different: it is more likely that the poorly contributing member would be complained about bitterly to the teacher and then either expelled or ostracised from the group.

5.2.3 Students feel they need more support from the teacher

In the realm of PBL, there is a change of expectation in the role of the teacher from director and transmitter of knowledge to a facilitator/advisor (Delisle, 1997; Madoyan, 2017). A negative attitude expressed in the interviews from the perspective of the students but not expressed in the questionnaires. Students described their frustration with their teachers when approaching them for more support and direction; they felt the teacher should provide more resources for them (see Appendix P). A common theme across the groups and classes was the expectation by some students that the teacher should be the sole resource for all the handouts or relevant texts. In a teacher directed environment, the teachers are often providing all the course content because they are the definitive authority on the material. With a change of role, teachers are not expected to provide all the data but students are expected to find their own resources, process them and present their findings on their own to solve their problems. Such teacher expectations only infuriated the students and made them dislike the teacher more and gave the student the impression that the teacher was unwilling to help. When teachers gave their viewpoint on the situation, they noted that that the noted that the students vented their frustrations on their teacher, such as commented by Teacher 4 (page 154). Most of the comments by the students seem to focus on the insecurity of the expectation of finding their own information. They have the view that it is the teacher's responsibility to provide all the relevant material because they are the authority, and thus the authority should play that

role. However, then given the new expectation to undertaken research and find their own material, this can cause insecurity for the students.

The finding here confirms what was found by Aldrees Khalil, Irshad and Abdulghani (2015) who reported that when Saudi students were asked to participate in a student centred classroom and experienced the change of role of the teacher from teacher directed to facilitator, the students did not like the change. Their research found that students still had the expectation that the teacher should help when they were struggling and were frustrated when requests for help were rejected. The change of role in both this study and the Al Drees et al. study could indicate possible cultural perception of the students on how they have experienced teachers in secondary school and that expect teachers to behave similarly in a higher education setting.

To help overcome such situations, Jay (2014) suggests that in order to improve student acceptance of the change of the teacher's role is to undertake the transition slowly. From Jay's observation of the transition change between first through to final year students of a South African university, it was best that facilitators give greater support during the first year's experiences then this is slowly reduced as students are given greater responsibility because they will be aware of what is expected of them.

In PBL, there is the expectation that students need to be given the opportunity to find information on their own and find that material which is relevant for their problem. This is part of the student self-directed learning approach of PBL where the students are experiencing PBL as placing responsibility on the students. However, even though this expectation is placed on the students, the students still do not accept that the teacher is there as a facilitator. Learning to become independent from the teacher and learning how to handle the ambiguity is presented in PBL. The pedagogy has the expectation that it is not enough to know information, but that you must be able to apply the information in a productive way (Looi & Seyal, 2013).

When comparing the expectations, Vernon and Blake (1993) found the teachers expected their role to be that of a resource guide and facilitator of learning in the group. This arrangement means that the teacher is not there to dictate information but is there to help promote the group's processing of information. From the perspective of Aspy et al., (1993) again the teacher's role is to encourage student participation, provide appropriate resources

and to be a "fellow learner". However, examining the data in Chapter 4 that the students are not ready to accept the teacher as a mere facilitator. The students' call for more resources may be justified but then as Teacher 6 (See Appendix R) noted, the students have difficulty processing the content because of their limited English. This finding indicates that teacher support is required and that perhaps the teachers also need better support when preparing for a PBL assessment for their Business/IT course. This data indicates that more support is being called for by the students, and the teachers themselves need more support as well, whether that comes from administration or in -class tutors.

5.2.4 Teachers feel students' low level of English impacts their progress

One issue which arose during the teacher interviews was the negative impact of the students' low English proficiency and its effect on their students' progress with their PBL projects (see pp 136-37). Pathare (2011) made the same finding. What the teachers identified was that students were unable undertake the projects well because they were unable to comprehend texts or they had difficulty expressing themselves during presentations. Vygotsky (1978) proposed that constructivism helped explain the learning of a second language, such as the learning of English in universities within the UAE. He proposed that cognitive development was influenced by language and culture, which affect how we perceive the world. More specifically, Vygotsky (1986) felt that language and culture provide the framework in which we experience, communicate and understand the world around us. Therefore, from his point of view, knowledge is socially co-constructed by human interaction, and the language and meanings of our world occur through social phenomena. He strongly believed that the social community we live in, which in education can include group work and class discussions, can play a central role in the process of making meaning in the development of knowledge and language. Therefore, the theory of constructivism has a strong role in helping explain the implications of the finding of low English proficiency in this research.

One issue arose during the teacher interviews which should have been asked in the questionnaire and which no students commented on. This was the impact of low English proficiency. What the teachers identified was that students' satisfaction with PBL projects was impacted negatively by the students' lack of English language proficiency. The consequence of this was that students produced incomplete, poor quality and sometimes even incomprehensible PBL products. Having poor English proficiency affected the project work

at many levels, including work being poorly transmitted during presentations, students unable to communicate effectively in groups and students unable to comprehend relevant resources for the project. These issues have also been identified by Hassan (cited in Swan, 2013), with a consequence of poor English skills adversely affecting students' future employment opportunities. A negative impact for students who have low levels of English proficiency was reported by Almurshidi (2014), who found that Emirati and Saudi students' proficiency affected their group discussions and presentations when they were studying in overseas universities. The same problem existed for the Business and IT courses, where teachers found that poor English proficiency led to students' inability to present effectively at the end of the course. The issue of deficient language skills creates discomfort, embarrassment and anxiety for many Emirati students.

This situation may have arisen because of the interaction of two factors: the Business and IT courses are using PBL for internal assessment, and they are using the medium of English as the language of instruction and learning. Learning through PBL is made more difficult because the PBL pedagogy expects students to have higher levels of English so they can function effectively with their projects and work well in groups. If the students being taught have a low level of English proficiency, this fact will therefore conflict with the PBL pedagogy. Teachers recognised the consequence of their students having poor English skills and how that condition weakens their performance in PBL projects.

Ways in which teachers can support students in overcoming the limitation of poor English proficiency when participating in PBL projects are needed. English is used in UAE tertiary education institutions for the teaching of course content because the federal government and the local work environment emphasise that this language is important for global communication. The emphasis on the use of English within the UAE is also common in many Middle Eastern and Asian countries who wish to use English for world communication, international business and social/cultural international relations (Hopkyns, 2014). The close relationship between language and learning was highlighted by Vygotsky (1986), who saw that learning always occurs in some language. He thus understood that language and learning are intertwined and that their level of language proficiency will seriously influence the level of learning for students. Therefore, one must consider the language the Emirati students were using as it influenced their level of learning.

One suggestion for dealing with the problem of students struggling to complete their projects in English is to consider whether the students could learn better from their projects in their first language of Arabic. This suggestion encourages the use of code switching for Emirati students, particularly for the situation when PBL projects are being used for internal assessment for Business or IT coursework. UAE tertiary education institutions are faced with trying to meet their Emirati students' academic needs. As this thesis is showing, these Arabic-English speaking students have varying levels of mastery of the English language in speaking, writing and reading. While some of these students begin their education in their native language of Arabic or have classrooms which in which both English and Arabic are used, others are monolingual Arabic-speakers or have mastered only minimal vocabulary in the English language.

Therefore, there appears to be a need to allow students to use Arabic within their coursework, which may better show the students' acquisition of Business and IT knowledge and could give a more accurate portrayal of this knowledge. One important benefit of being allowed to code switch between English and Arabic is that students may have an improved attitude to participating in PBL project work and accepting the pedagogy as useful in their tertiary education course work.

5.2.5 Lacking essential background experience and skills

Three types of essential background knowledge and skills were identified by teachers in this study. Firstly, teachers identified that the lack of everyday background knowledge, particularly for IT or Business, impacted the students' comprehension and teacher workload. One teacher commented in the interviews that the female students did not even know the basics of banking, such as withdrawing or budgeting their own spending, which are simple aspects of any business. Therefore, as a consequence of the students having limited background knowledge, it is likely these teachers would have spent additional time explaining basic concepts of Business/IT Another background knowledge weakness that the teachers of this study have observed is the students having undeveloped reading skills in areas such as predicting, scanning or lacking the ability to solve problems Thirdly, teachers noted that the students lacked basic experience with group work. During one interview, a teacher commented on the frustration and difficulty female students had with comprehending business concepts. The teacher noted that many of her students had no experience with business, not even having the basic experience of opening a bank account, so even basic

business terminology was lost on those students. The teacher explained that this lack of background business knowledge was due to the students being confined at home because of the cultural rules for females. Within the Islamic culture, there is a tradition of Middle Eastern women having their daily movements restricted outside the house. They must be accompanied by a son, husband or male relative. However this restriction is being lifted in the UAE as society develops within the global economy (Kirdar, 2010). Typically, female students are taken directly home after school and are not allowed out of the house grounds for visiting friends or to shop at the mall on impulse. This situation illustrates that needs to be more support for such Emirati students due to cultural experience. Having a lack of general experience made the use of PBL group work harder, as the teachers would have to spend more time and energy to get students up to par for the pressures of the project assessment. Tally (2011) has also identified the importance of student background knowledge and its presence so that students can have a positive experience in PBL assessment.

The same situation was noted by Narvin (2016), who found that when the female Emirati students graduated, they still lacked essential workforce and life skills, and this impeded their employability. Presence of these skills is important for students of this study, but since they are lacking, it is possibly impacting on the students' level of satisfaction with PBL assessment. Since some students are stating they are facing frustrations and difficulties with PBL assessment in their Business and IT classes, they may not be aware that it is because they lack essential knowledge. Therefore, when teachers hear comments like "I do not know what I am doing" or "What do I do next?" this reflects this lack of essential knowledge or skills. The issue is compounded further with the students lacking previous experience with having done PBL projects. If they had undertaken projects earlier in their education, many of the struggles they are identifying with now, would not exist.

The consequence of students lacking essential knowledge and skills which would allow them to function better in PBL assessment means that they will struggle. PBL is an approach which requires students to be ready with essential skills such as autonomous self-learning skills, time management and effective group communication. What is being experienced by teachers in this research is a situation where they are finding it difficult to implement PBL assessment within their Business and IT courses, and they watch their students struggle to meet the project expectations because they are under-skilled. As Hatherly-Greene (2015) has identified, this is a result of the rote learning approach used in

many UAE secondary schools. PBL asks students to match new information with prior knowledge, and if that knowledge is not present, it creates new problems for the students. This means the students struggle to be generators of new knowledge and developers of essential life skills. Without any previous background experience, these students are set up for failure when entering a student-centred higher education environment. To address this situation, these students need to be given extra time to connect with what they need to know and what limited knowledge they already have. This means that teachers will need to constantly remind themselves of this issue when preparing and planning projects for students. These students need this knowledge, as without it and without having time to build on it, it is like asking the students to be a professional football player without having an understanding of basic ball work. Background knowledge begins from an early age, but this is hindered early in these students' lives not only because of being raised by foreign maids but also by the nature of their culture. Without support from the students' teachers, these female students will be lost. Therefore, with teacher support, it means that the students can quickly catch up on the essential knowledge they need for their Business/IT courses.

Teachers will need to question what essential background knowledge is required for any project and identify the level of understanding their students have when they come into the course. From there, they can provide any additional training and teaching that will be needed so the students are ready to undertake the project assessment. Lack of basic background real-world knowledge, life skills and education causes students to be daunted by projects. Therefore, the responsibility of getting these students ready is that of the teacher. However, it is the direct real-world experiences these students are going to have with local businesses and IT teams that will awaken the students and give them a start to understand what is required for their future lives if this is where they endeavour to be employed. Projects will give these students the rich rewarding experiences and can be used as a starting foundation for the students' future careers. Although using projects to start this process might be stressful and frustrating, as some of the students in this study were currently finding, hopefully by giving these students first hand experiences, it will bring more personal and memorable learning and ensure the students are motivated and are learning.

5.2.6 The impact of culture on female Emirati students and PBL

Culture can impact how students react to or experience PBL, as noted by researchers (Frambach, Driessen, Chan & van der Vleuten, 2012). For this research, it was reported by

both the students and the teachers how the local culture impacted both the male and female students' interaction with their PBL projects. The teachers observed that cultural rules of the local culture had a more adverse effect on the female students' ability to participate in and complete their projects. When culture has an impact on the daily lives of students, this also has an impact on their educational development. These students were restricted on the campus during the day and then restricted to their homes at the end of the day. With restricted movement, it meant the students had to adapt in how they could communicate and complete their project. This could explain why the female students during the class observations were very focused and working intently on their projects. The students knew that they had to maximise the time they had while in class, as it could not be done outside class. This in turn, would make the project more time consuming and in general harder to complete. Therefore, with the realisation that restriction of movement issue could affect female student's ability to progress with their projects, more consideration should be given to female student classes in that more time be allocated for the project.

Another issue which could explain why female students in this study are highly interested in partaking in PBL business and IT projects is they may see that this activity helps develop skills which they presently lack. Also, these students may perceive that PBL is giving them new interactive ways of learning and they wish to take advantage of this new opportunity. It could be they see that PBL projects can help push through hidden cultural stereotypes that still exist for females within the UAE culture, as noted by Mostafa (2005). PBL projects may give these students the learning and skill development that they would otherwise miss out on if they were still being taught through a teacher directed approach. Within UAE education, female Emirati students outperform males in school and graduate at higher numbers, and this reflects the reality that this gender is motivated and driven to achieve their personal success. PBL is one approach in which these students may be encouraged to have stronger motivation to learn in their business and IT courses. Hewlett and Rashid (2010) found that female Emirati students were motivated to achieve a higher education to ensure they could gain higher positions within the workforce. Therefore, further research needs to be undertaken to see if Emirati female students are using PBL projects to help meet their external goals of employment.

In light of such issues, teachers need to be more aware and prepared for these situations when planning for PBL project assessment. Teachers can take advantage with the

known background whereby female students have motivation and ambition to succeed, and this should be capitalised on with the inclusion of PBL projects in their courses. Therefore, every educational opportunity should be given to these students. However, there are pressures which exist with the implementation of PBL, as mentioned above, and these need to be addressed by the teacher. Therefore, careful planning needs to be given to how these students are supported when working in groups, processing reading material and learning how to work independently.

5.3 Emirati student level of participation in PBL projects.

The following section presents a discussion that male Emirati students are less engaged with their PBL projects (5.3.1) and that female Emirati students are more engaged with their projects (5.3.2).

5.3.1 Male Emirati students are less engaged

The male students observed working on their PBL projects were at the level of "retreating" on Schlechty's Level of Engagement Scale (Schlechty, 2004, 2012). This level of engagement is shown by the male students' lack of full interaction with their PBL projects and their apathy towards being fully engaged in the learning opportunities provided through the pedagogy. This situation reflected the reality of how male Emirati students engage with their tertiary education learning. In this research, some male students were off task, participating in social chat media and games offered through technologies such as iPads and iPhones. This is a finding similar to that reported by Miqdadi et al. (2014), who found that their sample of male Emirati students were highly off task due to using phones in class, which created interruptions in their concentrating on learning. Al Kaabi (2016) found that male students reported that having technology such as the iPad in the classroom gave the students easy access to opportunities to be off task. The present research extends this kind of finding by further confirming that PBL pedagogy was not sufficiently engaging male Emirati students, who were easily distracted by accessible technology. The male students' behaviour showed the effects of cultural and social factors which affected their level of engagement with the PBL pedagogy. This situation signals a need for adjusting the pedagogy so that it creates greater levels of interest and involvement for male Emirati students.

Astin's (1984) theory of involvement can be applied to the UAE tertiary education

context to help explain or deconstruct the male Emiratis' level of involvement with PBL projects. Astin argues that student involvement requires an investment of the students' psychosocial and physical energy. The male students were observed as showing a clear disinterest in being involved in their projects and as lacking in physical energy to be engaged in their projects. Astin proposed that student involvement is continuous, and the amount of energy invested will vary among students. What was observed was that the level of involvement male Emirati students displayed was very much less than what was desired and expected by the course planner and the teachers. Thus, as explained by Astin, the students' low academic performance is due to the low level of involvement. Astin's theory of student involvement investment helps explain the correlation of student involvement on the one hand and retention of students and stronger academic results on the other (Kuh & Pike, 2005). The theory helps explain the low level of male student involvement in their university, even down to their involvement in PBL project assessment, which is then reflected in their high level of dropping out of the university. Astin feels that with low quality and quantity of student involvement within their university at all levels, both academically and in regard to extracurricular activities, students are more likely to withdraw from studying at their institution. The male students' low level of engagement with their projects could be a response to many factors, and further investigation into these possible factors is required. Unfortunately, these students are missing out on important knowledge and skill opportunities, which is a loss that will likely follow them into their future workplace. It is essential to gain male Emirati student involvement in their PBL projects to avoid future handicaps these students are setting up for themselves.

5.3.2 Female students' engagement

Emirati female students were observed to be highly engaged in PBL throughout five different classes, both at individual and group levels. High levels of participation in the PBL pedagogy showed engaged and motivated behaviour among female students, which indicated that the students valued the pedagogy. Therefore, these students' behaviour confirms the effectiveness of the pedagogy. Schlechty (2004, 2012) would describe these students on his rubric of level of engagement as "authentic learners" because they were exhibiting authentic engaged behaviour. Boukhobza and Hajjaj (2014) found that the level of engagement of 50 Emirati females studying leadership skills slowly increased by the end of their course. The researchers believed the increase of engagement occurred because the students appreciated

and liked PBL. This increase was noted from observations of the students participating more in their teams and exhibiting enthusiasm in their learning. What is suggested by those results and the results from the present investigation is that the PBL pedagogy provides opportunities for Emirati students, no matter what the subject area. There are several reasons that can help explain this high level of engagement, including that there are more females than males in UAE tertiary education (Ridge, 2011), and the women are more empowered because they are relatively free of cultural restrictions while engaged in courses (Rutledge, cited in Swan, 2014). PBL also provides opportunities to socialise that would not be available outside the PBL-based classes. Outside the classroom, the students have limited opportunities to combine learning and socialising, and PBL provides an opportunity for these to co-exist. The level of female student engagement thus increases with the students able to share ideas, resources and friendship in their PBL groups.

Finding that female Emirati students were highly engaged in PBL-based environments is encouraging (see Belland et al., 2006; Brush & Saye, 2008). One reason these students were engaged in PBL classes is that they were involved in solving real-world problems (Blumenfeld et al., 1991). Evidence that PBL successfully engaged the students was noted by Ravitz and Mergendoller (2008). Their study took place in a PBL economics class, where they found that the young women in the class were finding meaning and relevance in what they were learning through their projects. Wenzel (1998) suggests that the high level of student engagement in PBL indicates the effectiveness of the pedagogy. The pedagogy proves itself in supporting student learning not only for their time as a student but also as preparation for their future employment. Schlechty (2012) noted that PBL also allows students to develop other positive behaviours, such as persistence, patience and identifying the value of learning.

Analysing the female Emirati students' engagement with their projects through the lens of Astin's (1984) theory of engagement indicates that since the students are involved more in their academic studies, they are learning more. By devoting significant energy to their projects and alongside their peers, the quantity and quality of the students' learning becomes greater. This theory is consistent with the teaching method of PBL, as it holds that the student plays an integral part in determining her degree of involvement in learning. The outcome of greater involvement with others and their studies, in the eyes of Astin, is stronger

cognitive learning, stronger relations with peers and stronger student retention at the university (Astin, 1984, 1999).

According to Astin, however, if students are to continue strong investment in their learning, teachers must invest time with their students, as teachers' relationship with their students helps to maximise their learning opportunities. This means that the teacher needs to be aware of how motivated their students are and how much energy and time they are giving to the learning process. Based on their observations of their students, teachers stated that they saw better participation in their PBL classes than in teacher-directed classes. The teachers had experienced their students being passive and bored when taught in lecture-based courses, which leads the students to become disengaged from their lessons and easily off task.

That PBL pedagogy is important for UAE tertiary education is also suggested by Verma, Dickerson, and McKinney (2011), who found that secondary school students became more engaged in a marine engineering course when they had to show their knowledge in an applied shipbuilding project. PBL pedagogy has the advantage that it can be used in many subject areas, and, when used effectively such as in Business and IT courses, female student engagement is noticeably better. Their engagement is possible because they are being allowed to collaborate, communicate, be creative and be challenged.

Although Business and IT course planners presumably have great expectations for the educational outcomes of PBL project assessments for their Emirati students, it may be interpreted from the evidence above that the actual outcomes may not match desired outcomes. Many of the students showed enjoyment in their participation in PBL and satisfaction with the quality of their learning, yet there are issues which, if were they resolved, would potentially lead to better outcomes. A main limitation is students' lack of proficiency in the English language, which poses serious problems for Emirati students and for the use of PBL in Business and IT courses. Using English as the main language for group discussions may limit progress, which suggests that students should be allowed to engage in discussions using Arabic as well as English. This thesis provides evidence which points to possible success for the integration of PBL within UAE tertiary education. However, education planners still need to have a clear understanding of the PBL process; its philosophy and classroom implementation in order to be able to optimise the use of PBL to meet desired educational outcomes.

Both student and teacher voices should be included in pedagogy evaluations; but at times, these may actually be excluded by those in power - e.g., course planners, university administrators (Cothran & Ennis, 1997; Joseph, 2006). Such actors have their own self-interest and may impose certain course changes to meet higher levels of societal expectations; such as is done by the UAE federal government. Therefore, to meet the challenges of a rapidly changing work environment in the UAE, teachers and course planners are rethinking how education should be delivered in that country and are introducing and evaluating new pedagogies in their courses. PBL offers opportunities and learning experiences which challenge the use of the current teacher-directed pedagogy. This investigation evaluated the use of PBL in actual classroom situations, using student and teacher voices. To develop stronger educational development for UAE university students, studies such as this are needed to help evaluate new pedagogies in the context of UAE tertiary education. Essential elements for course planners are to use students as indicators of how a course or pedagogy is working for them, which provides a student perspective on what is being taught and on course structure rather than simply evaluating teachers on how they taught (MacLeod, 2007). The PBL pedagogy challenges the assumptions of teacher-directed classes and is opposite in philosophy; PBL asks students to reflect upon their learning and to question what is significant when learning through PBL. Gaining an understanding of what PBL means to both students and teachers can show whether the pedagogy is making the course more empowering and cooperative.

5.4 Summary

This chapter has reviewed the findings of how students and teachers view the effectiveness of PBL as a pedagogy. Section 5.1 presented the results of UAE student and teacher opinions on PBL, while Section 5.2 detailed Emirati student level of participation in PBL projects. Based on analysis of the results from the questionnaires and interviews, the Emirati students and their teachers showed their preference for PBL pedagogy as an aid in learning Business and IT. The Emirati students said that they found PBL effective in helping with learning Business and IT at a tertiary education level and that there is a possibility this pedagogy is motivating them to learn. This study has identified a mix of student reactions towards group work, depending on the measuring instrument used. Then when examining the

interviews, there are issues with group work, and one complaint that does stand out is the issue of having to carry those group members who are not contributing. This is only one aspect of the downside of group work. Some students commented that they liked group work because it was fun, interesting and allowed them to have a social time. What the results indicate is that further research is required to give a clearer picture on student impressions on PBL group work.

Both students and teachers agreed that the PBL pedagogy provided challenges for the participants, in that some students were struggling with group dysfunction and a majority were struggling with time management skills. Group work and time management are part of the PBL pedagogy context, but both elements presented barriers to the students, which affected their ability to totally enjoy the pedagogy. One hurdle identified by the teachers was that the students' level of English affected their progress, participation and enjoyment of PBL. Lastly, this thesis established through the observed behaviour of the Emirati students that the PBL pedagogy was effective for these students. It was also identified, based on the male students' behaviour, that some students were disconnected and unengaged with the pedagogy. The learning benefits the pedagogy offered to them were thereby unrealized; however, the cohort sample of males was small and this conclusion requires further research. The female students were engaged with the pedagogy and showed the pedagogy to be effective, and the majority were satisfied with participating in it. The student and teacher evaluation of the effectiveness of PBL suggests that the pedagogy has value for UAE tertiary education but needs to be adapted for the Middle East environment. However, more research needs to be done on the effectiveness of PBL for Emirati tertiary students. This research set out to understand how PBL is being implemented in UAE tertiary education. The Emirati students and their expatriate teachers were asked for their views on PBL regarding what benefits and challenges the pedagogy presents to them. The thesis has revealed, through students' and teachers' voices, that PBL is valued for its effectiveness and as an enjoyable way of learning, but it does have challenges when it is implemented. The findings show PBL to be a pedagogy considered to be beneficial by most the Emirati students participating and to be accepted by their teachers in Business and IT courses. The students and teachers confirmed that PBL is worthwhile to have in UAE tertiary education, even though there are some challenges, such as group work and time management, which can limit students' level of engagement.

In summary, what has been discussed in this chapter illustrates how a deep approach to learning is possible if it is facilitated by using effective teaching methods such as PBL. This discussion has shown that the student and teacher evaluations of PBL suggest that learning in Business and IT courses needs to occur in a climate of engagement and motivation which is being fostered using effective pedagogy. Business and IT students are learning new concepts and principles in their discipline, and they need access to real world experiences which are relevant to what they are learning. For engagement in the learning process, students should be active in their learning, and that PBL used in Business and IT courses helps further active learning. Chapter 6 follows, with recommendations on how PBL could be used to better support Emirati students in UAE tertiary education contexts. It is suggested in the chapter that the use of Culturally Sensitive Teaching (CST) could help students overcome cultural factors that might hinder their learning. Course planners can use CST to help students adjust to unfamiliar pedagogies such as PBL more easily, allowing the students to gain a greater appreciation of the pedagogy.

CHAPTER 6. CONCLUSION

6.0 Overview

To enhance the effectiveness of PBL in Business and IT courses within UAE tertiary education institutions, a number of recommendations are given in this chapter. Section 6.1 presents a summary of the findings. This is followed by a reflection on the thesis in Section 6.2. Possible answers to some of the problems identified through the research questions and recognised in Chapter 1 (Section 6.2.1) are offered. Differences and similarities with Western-based universities and their use of PBL are also identified. In Section 6.3, the uniqueness of the UAE context is examined in regard to how differing factors affect education change. A short discussion in Section 6.4 identifies those who will benefit from this investigation. Limitations of the thesis are identified in Section 6.5, and directions for future studies are suggested in Section 6.6.

6.1 Summary of research findings

This research posed three essential questions, answers to which are discussed below. The first research question **RQ1.** *What attitudes do Emirati Business and IT students have towards PBL?*

There were two main responses to this question.

1. A large percentage of respondents voiced their recognition of the benefits and learning opportunities afforded by the PBL pedagogy. Table 6.1 summarises the student attitudes to the role of projects in the PBL classes. On applying knowledge, understanding the subject more, gaining a lot from projects, and finding projects motivating. During the interviews, a range of students stated the benefits to them of doing PBL. For example, when asked, what are you personally getting out of doing these projects?

Student 30 replied:

"I get to learn more knowledge and more information. It helps with working with others and not having to do it on your own". (Student 30, student interview, May 27, 2012)

Student 18 said:

"I think I have found them to the fun and interesting." (Student 18. student interview, May 23, 2012)

Classroom observations from Classroom 3 showed that the individual being observed and the class were highly engaged, participating in group discussions. The data presented in Appendix M showed that the group members were reading up on data on the computer, writing up material for the project and discussing outcomes. The Group and Individual 3 being observed demonstrated full engagement in their project, or at times passive engagement. The students were not off task or finding distractions to occupy their time.

Table 6.1 *Findings for this study.*	
Statement 1: Projects help me apply my knowledge.	148 (94.9%)
Statement 11: Projects help me understand the subject more	106 (67.9%)
Statement 19: I gain a lot from projects.	130 83.3%)
Statement 22: I find projects motivating.	119 76.3%)

2. A second group of respondents voiced their dislike of participating in PBL projects. Most of those data came from the responses from the questionnaire and interviews related to time to complete a project, and dysfunctional groups.

For this group, a number of issues arose, such as a perception of 'limited time to complete the project' and their struggle with time management. Also, they felt there was too much effort required to complete what was expected and they often struggled with requirements, causing dysfunctional group behaviour. Many of these negative issues seem to have arisen because the respondents were unfamiliar with the pedagogy and were lacking the necessary skills which would help them to perform more effectively in PBL. Therefore, they had difficulty doing their projects and gained a very negative attitude towards this new method of learning. Therefore, with this combination of having a possible lack of experience in PBL projects, which led to difficulty progressing through the project and therefore may create the calls from students in the interviews that they needed more support from their teachers.

Based on examination of the data on student attitudes and participation in sessions, significant insights have been achieved. Firstly, the students who voiced favourable responses to PBL involvement found the pedagogy to be working for them. They were comfortable working through the PBL process. This thesis, as well as research by Kucharski, Rust, and Ring (2005), indicates that students with a positive attitude to the group work process and task performance show an increase in intrinsic motivation, self-esteem and engagement. Those students who indicated positive attitudes towards projects on the questionnaire reflected high satisfaction with their PBL projects.

Secondly, the students with negative responses to PBL, indicated that the pedagogy was either not working for them or they found the PBL process a struggle and frustrating. A result of their lack of enthusiasm for working in the pedagogy could have follow-on negative consequences, such as lack of participation and a negative impact for future learning, low academic achievement and lack of developing skills which could be used in future work opportunities. Those students are disadvantaged.

The students contributed their voices as an evaluation of the pedagogy that they were interacting with. By giving the students an opportunity to voice their opinions on PBL, this researcher has provided data showing teachers and course planners how PBL is impacting students in UAE tertiary education. Understanding the students' views can challenge the assumptions of teachers and course planners about the integration of PBL in Business and IT classrooms and may help create positive change by integrating the pedagogy in UAE tertiary education.

RQ2. *How do Business and IT expatriate teachers view their students' attitudes towards PBL?*

Teachers noted on four occasions in their interviews that PBL is a suitable pedagogy for teaching Emirati students in Business and IT courses, as evidenced in Appendix R. Their evaluations provided a high rating for using this pedagogy in UAE tertiary education. They reported that for the most part, their students enjoyed their projects, and they felt the pedagogy was developing students' knowledge of Business and IT. They also believed that PBL projects were giving their students essential knowledge and lifelong learning skills that both employers and the federal government seek in UAE tertiary education graduates The teacher respondents also said in the interviews that they witnessed that some of their students

responded negatively to group work and struggled with time management At times both groups of respondents agreed that PBL projects helped students apply their Business/IT knowledge and that the pedagogy helped to make learning more interesting The teachers noticed improved student motivation and range of skills including teamwork and communication skills. There were other times where teachers disagreed with the students, such as over the issue of the provision of resources. They had different perceptions of each other's roles indicating therefore that both groups needed to be more aware of each other's roles and expectations in working on PBL projects.

Teachers reported that the students procrastinated which led to many students struggling to complete their projects, whereas students complained they did not have enough time. This implies that teachers may need to teach their students about time management and time scheduling for their projects. Teachers also equated students' low English proficiency with having a negative impact on student progress with their projects. The students did not share with teachers the concern about their poor English skills.

RQ3. *What are the levels of engagement of male and female Emirati students with their PBL projects?*

Observed student interaction with PBL projects reflected differences of gender affecting levels of participation. For observed male students, their interaction level was very low, with students being disengaged and distracted by social media. Female students were observed to be highly engaged in PBL-based classroom settings; which suggests that the female students were enjoying the pedagogy because they found it interesting and stimulating. This stimulation comes from a range of influences such as an interactive learning environment, an interesting medium of learning and enjoyment of studying in small groups.

Another reason for the high level of engagement was desire to develop essential skills for future employment in Business and IT. Students perceived that they were learning in the PBL environment and that the pedagogies were facilitating their employability skills. Since students enjoyed learning and participating at a high level, it can be concluded that PBL is a viable form of teaching when looking to facilitate Emirati student educational achievement and employability skills.

The questionnaire results demonstrated that both female and male students in Business and IT had positive attitudes toward project work. There was general agreement that PBL projects helped them learn Business and IT. This information can help inform university

administration in how well PBL pedagogy is working within UAE higher education. This finding, however, does need more research to identify whether there is sufficient evidence that both males and females responded positively to learning when teachers applied a PBL pedagogy in their classes.

Another conclusion is that many of the female students liked projects because they enjoyed the complexity and the ability to control their learning. Allowing Emirati students to take responsibility for their learning means that they are challenged and more likely to maintain motivation, which is essential for their remaining positive towards PBL. It was found that male students were less engaged with their projects.

In spite of the positive benefits of PBL recorded in western literature, there are still challenges for curriculum planners and teachers when introducing the pedagogies into non-western tertiary education, including Business and IT courses in the Emirates. This investigation has allowed the students and their expatriate teachers to evaluate and share their experiences with the pedagogy. It has also allowed students and teachers to express views on the effectiveness of PBL projects for experiential learning. These views are important when evaluating the PBL pedagogy, which is a recent addition to UAE tertiary education.

Tertiary education institutions within the UAE are aiming to emulate the success of Western tertiary education to achieve Emirati graduates who are ready to meet the demands of the UAE evolving workforce. Local business and IT companies require well-trained Emirati students—graduates who know how to make independent decisions, work with teams and evaluate the decisions they have made (Stanley, 2015). These requirements have led tertiary education institutions in the UAE to include pedagogies such as PBL to help develop higher order thinking skills that can be used to deal with practical problems in Business and IT organisations. This thesis has shown that for the most part, that for the male and female questionnaire respondents that they realised that PBL is useful in helping develop their learning and team skills. The students see that PBL pedagogy has brought interest and social connection to the learning process. The results of this thesis need to be taken into careful consideration because of the large female cohort of respondents and the study is focusing on teacher and student's perceptions of pedagogy. According to Wilkinson (2016), student voice is important to evaluate but always requires careful interpretation. However, including teachers' voices and views on PBL has helped confirm the Emirati students' voices, with

both groups perceiving that PBL has benefits for Business and IT first-year students, though issues still remain. What is clear from the findings is that PBL is pedagogy by which learning of tertiary education Business and IT can be undertaken. What also has been highlighted is that an integrated plan for instituting pedagogy change is needed and that tertiary education organisations need to integrate PBL gradually. The findings have found that Emirati students are still struggling to comprehend and adjust to PBL being incorporated in Business and IT courses. Also, students need more time to adjust to the pedagogy so they can maximise the benefits the pedagogy offers. By giving students time to adjust to PBL pedagogy, they will be able to slowly absorb, understand and deal with the nature of PBL projects. At the moment, students are being expected to absorb PBL pedagogy as it is and produce expected results without enough clear direction. Giving the students and teachers a voice in the evaluations of PBL shows that the pedagogy is functioning within Business and IT courses; but its functionality still has a way to go, and improvements in its integration with Emirati students remain to be made.

6.2 Reflection on this thesis

The purpose of this thesis was to present the 'voices' of students and teachers on their views of PBL pedagogy. This thesis has provided opportunities for two groups who are not often heard to express their opinions. Allowing them space and opportunity to express their opinions is a step toward full acceptance that their views should be included in pedagogy course planning within the UAE.

This thesis has found that the majority of students:

- recognised benefits of doing PBL projects;
- indicated that projects helped them learn content for the tertiary education subjects of Business and IT; and
- found group work to be a worthwhile activity which their learning.

However, the students also reported that:

- projects at times were frustrating and difficult;
- they needed more time to complete their projects; and
- they needed more support from teachers.

Their teachers agreed with the findings voiced by the students; however, the teachers also reported that students need greater support in their English proficiency, as doing projects in the English language affects their ability to communicate in groups, understand the subject vocabulary, comprehend readings and present their findings effectively. As discussed in Chapter 7, a number of improvements can be made to help support Emirati students in their ability to undertake PBL projects in tertiary education courses.

6.2.1 Answers to the main problems identified in the Introduction

As noted in the introduction, there is a high level of unemployment among Emiratis who have graduated from tertiary education institutions (Croucher, 2014). To ensure better employment opportunities for Emirati students, there is a need for a higher quality of graduates. This can be better achieved with the use of pedagogies such as PBL, which is currently being used in UAE tertiary education institutions. The use of the PBL pedagogy has the potential to bring about an improvement in the levels of student training and skills. The findings have highlighted that for the UAE tertiary education system, there is a need for effective pedagogies such as PBL to be in place. The inclusion of student and teacher voices is important when evaluating the effectiveness of a pedagogy, because what students and teachers state could help bring important changes to help the delivery of the pedagogy within the taught courses. Listening to and understanding the student voice can help improve education policy evaluation. Allowing the use of student voice as a means of evaluating tertiary education courses can mean more effective and equitable learning environments for all Emirati students. Including the teacher voice is also important as it can help confirm or dispute the student findings or give a different perspective on the same issue.

The UAE needs to ensure its tertiary education graduates are well equipped and ready for global workforce demands by being highly creative, innovative, motivated and hardworking. PBL has a necessary role in UAE tertiary education because the system has relied too long on rote learning, which has resulted in students having to undertake foundation support courses at the university level. With PBL being included in foundation and mainstream courses, students can start making connections between what they are learning and why it matters in the real world. As a result, learning will be more interactive, less boring and more practical. Indications are that students who engaged in the PBL process are likely to develop the higher order soft skills of critical thinking,

problem-solving, appreciation of group work and team work, skills which the labour market is seeking in employees.

Until recently, there has been a mismatch between the quality of students graduating and the skills required by the UAE workforce. To overcome this mismatch, PBL has been adopted as one solution. PBL is one step towards correcting the situation so that students can enter the workforce with collaboration, evaluation and critical skills. Future Emirati graduate employees need to feel confident in the qualifications and skills they gain from university, and that they are ready for employment. The matching of educational training and employment needs will result in graduates being ready to contribute to the success of the UAE economy. This research addressed the knowledge gap in understanding PBL in UAE tertiary education by giving a voice to both students and teachers who are involved with that pedagogy. The investigation has allowed students to state that they felt PBL was helping develop their learning in Business and IT as well as enhancing metacognition skills. Education policymakers need to understand that there is a need to include the student voice when evaluating education outcomes and not just evaluate on the basis of assessment scores or graduate numbers. Probing students on their experiences in PBL offers deeper insights into how effective the pedagogy is. Furthermore, by taking into account the student voice, students are able to see that their voice has value and can appreciate their inclusion in contributing to education policy change.

This thesis has highlighted poor levels of motivation among male Emirati students in higher education classes, a feature which was recognised earlier by others, including Croucher (2014). A lack of motivation leads to a poor attitude in learning. With awareness of this issue, more intentional planning needs to be given to lead male Emirati students in their pursuit of a higher education beyond secondary school. PBL has the potential to help change the disinterest in male students at the same time as raising the profile of project based collaborative learning in English among curriculum developers and employers. This study allowed Emirati students to voice what they thought about PBL They found that aspects of PBL pedagogy were enjoyable and aspects impeded their participation. Authorities need to realise that PBL is one tool that promotes the development of essential skills such as critical evaluation, forward thinking and time management which are valued skills in the workforce and in a competitive global economy. Internationally skills developed through PBL provide hands-on understandings.

Hard work, resilience and overcoming challenges in difficult situations such as occur in employment are traits which can be learned. Learning to develop those universal skills early provides a good start for students studying in the PBL environments. However, PBL alone is not the only solution of solving male Emirati disinterest in further education beyond the compulsory years. Teachers also have to target appropriate pedagogy in their development of PBL strategies utilising their English language learning knowledge for enhancing individual conceptual and problem-solving skills for foreign users of English. PBL in the Emirati cultural contexts needs further exploration combined with other stimulus incentives to find future avenues to advance male student motivation.

Another finding of this thesis is that there is a need for continuing support for the educational skill development of female Emirati students. PBL has an important part in supporting the educational needs of female Emirati students. It is clear that project work can support female students with their learning of Business and IT. Being female in the UAE cultures implies certain restrictions on movements, but PBL provides new opportunities to undertake learning in a more interesting environment. There are challenges to the implementation of PBL, but this pedagogy can meet the learning needs of female Emirati students.

This finding has highlighted the issue of how insufficient English proficiency affects students' progress with PBL and affects their learning of Business and IT. Students need to be more proficient in English to help connect them as a community of learners and to the broader UAE community. Poor English proficiency adversely affects the students' progress at a range of levels, including vocabulary understanding, reading comprehension and an ability to communicate effectively in groups. The current changes in education policy ensuring that students learn English earlier in high school could help students progress better in PBL-based assessments at the university level.

Some students struggle with doing PBL assessment, partly due to lack of student-centred pedagogies in secondary school. As a consequence, they have poorly developed learning skills which continue into university. With the current changes in education policy, such as students learning more student-centred approaches in the STEM subjects in grades 11-13, as planned by ADEC in the Abu Dhabi Emirate (see Zaman, 2015), progress can be made. The inclusion of PBL assessment in secondary school may help speed up the gaining of knowledge and skills by Emirati students. Having skills in time

management, independent learning, research and presenting when they enter university will enable students to more easily fit into any course PBL-based assessment.

6.2.2 Differences and similarities found between PBL and in Western taught universities

This investigation has highlighted a number of differences and similarities between PBL used in a Middle Eastern country and in a Western-based environment. Firstly, the findings have highlighted the complexity of applying a Western-based pedagogy, in a foreign language, in a non-Western setting. This situation creates complexities for the local students who enter tertiary education institutions, as they are required to learn in a foreign language and to undertake studies with a different pedagogical focus than they are familiar with. Secondly, the investigation has highlighted the issue of cross-cultural differences in learning styles, approaches, beliefs and behaviours of Emirati students, which is further amplified between the genders. With these differences, this research has highlighted challenges of applying learning approaches like PBL in the UAE because of their foreign origin. PBL was created originally in a Western university for medical courses to help Western medical student's gain hands-on learning within their field. The Emirates situation shows that the implementation of PBL can prove difficult because female students are restricted in their movement, while male students have greater freedom. This situation is further complicated by having foreign English teachers who are teaching in English with a Western student-centred focus. PBL could be used as one of many approaches, such as work based training experience to help improve Emirati student's interest in their learning. The approach of both genders to undertaking any form of assessment is to procrastinate until the due date and be proactive in completing the assessment on the due date, which results in poor quality work. Due to this procrastination, the students are failing to gain the full learning and skill development they could achieve if they managed the PBL project from start to finish during the allocated time.

One similarity between this research and other Western-based studies (Silverthorne, 2009; Holen et al., 2015) is that Emirati students recognise the benefits of working in groups. While the overseas students identified group work as important because they could learn more effectively and work together, teachers noted that their female students regarded group work as a chance to avoid the gender cultural restrictions they face. The female students saw it as a chance to socialise and complete the work quickly as well as help those who were not

contributing. The teachers reported that PBL has the potential to help fulfil the learning needs of their students. They recognised that group work was embraced by the students to a point but for all the wrong reasons, in that it was not used to help develop team skills, communication competence and metacognitive skills. Instead, teachers saw it used by the students as an easy method to complete the project quickly and to achieve a grade. In this respect, what was desired as an educational outcome with the use of the pedagogy was not being achieved or developed.

Students need greater support in a PBL based curriculum. Similar situations have been identified in Western studies such as that conducted by Klegeris (2011). In this study, students expected that their teachers would give them all the resources they needed for their projects and felt that the expectation to source their own information was being lazy on the part of the teacher. This situation showed that when the students were faced with a difficulty, there was an unwillingness to solve issues on their own. The result was that some teachers rejected student advances for help, and students viewed those teachers as unwilling to help them get through the course efficiently and as a stumbling block to their future success in passing the course. Cultural elements came into play with students viewing the situation through a different lens from the teachers. This tension caused conflict between students and some teachers.

The degree of student unhappiness with PBL identified a need for better training or pre-induction to the process and expectations of PBL before the students are asked to undertake a full PBL assessment. The results demonstrated that while many students were positive towards components of PBL, they held negative perceptions of aspects of the pedagogy when it was used in their Business/IT courses. It can be reasoned that the students reflected on the time and effort required to do their projects such as the effort required to undertake group work and this influenced the students' perceptions of the PBL process. Even though the students gained exposure to new skills such as group work, how to undertake deeper learning and how to meet deadlines, they felt handicapped by the PBL process and by the expectations of the PBL environment. For example, PBL assumes that participating students are proficient in the problem-solving process, but this skill takes time to develop, and the way the students are undertaking this process may lead them in the wrong direction and may cause them to have to repeat the project. This may result in student frustration and tendency to give up, leading to student distrust of the PBL system as a form of assessment.

Another observation can be made of the results and the discussion above that the students need more support, particularly when it has been found that the students are finding projects time consuming, too much work, fraught with difficulty with group work. They expressed frustration with the teacher role and frustration with independent learning. This means that students need guidance in what is expected of them during the PBL process. The same observation was made by Al Drees, Khalil, Irshad and Abdulghani (2015) where they suggest in their study that both student and staff training is required before the utilizing the PBL as an instructional method. Also, Lee, Youn, Im and Baek (2016) feel that training support is essential to help students overcome the weakness of PBL, and they suggest that there should be the provision of well-trained tutors who can guide students in their self-directed learning experiences.

The situation outlined from these teachers' perspectives presents a difficult picture for themselves as well as for the students. The teachers realise they have an activity which can provide their students an avenue to learn from, interact with and gain a range of soft skills such as critical thinking, discussion and team development skills. However, they are having to work hard to support these students because the students are inexperienced, and have an inability to function within the expectations of PBL assessment. They see the potential use of a pedagogy which if the students had the skills and cognition for, the students would get more out of participating in. Since PBL is hard work for the students and the teachers, it does pose the question of whether this pedagogy is worthwhile for use in first year higher education assessment of Business/IT courses. Since students perceive PBL is hard work, it does indicate that students need greater support in the PBL process. However, further research is needed on what aspects of PBL students find hard work: is it group work, finding materials, or writing up information or other skills? However, even though students are indicating PBL as requiring hard work it does not mean the approach should be abandoned in Business/IT assessments.

The teachers commented that there were many factors which made PBL less effective than it could be in teaching student's research skills and autonomous learning. One primary factor was the students' level of English and the expectation that they participate in PBL using the English language. The students' level of English was not sufficient to comprehend the required texts or to express ideas fluently when presenting. Another factor was the

students' lack of ability: they had entered into a class using an educational pedagogy foreign to them, where they were expected to be working with a student-centred learning focus; however, they were not skilled in the autonomous learning approaches expected when PBL is used. There was deficient understanding of self-sufficiency among the students; therefore, the teachers had to adapt PBL in a variety of ways to help but not overwhelm the students facing a difficult assessment tool for the first time. Teachers felt that some students were ill-prepared and unable to work within the expectations of PBL and they complained about having to spend extra time and energy in supporting their students in resources, advice and planning.

Ways in which teachers can support students in overcoming the limitation of poor English proficiency when participating in PBL projects are needed. English is used in UAE tertiary education institutions for the teaching of course content because the federal government and the local work environment emphasizes that this language is important for global communication (Achmed, 2017). The emphasis on the use of English within the UAE is also common in many Middle Eastern and Asian countries who wish to use English for world communication, international business and social/cultural international relations (Hopkyns, 2014).

The close relationship between language and learning was highlighted by Vygotsky (1986), who saw that learning always occurs in some language. He thus understood that language and learning are intertwined and that their level of language proficiency will seriously influence the level of learning for students. Therefore, one must consider the language the Emirati students were using as it influenced their level of learning. That is why there have been recent calls for a reconsideration of whether or not UAE higher education courses should be taught in Arabic (National Editorial, 2012).

One suggestion for dealing with the problem of students struggling to complete their projects in English is to consider whether the students could learn better from their projects in their first language of Arabic. This suggestion encourages the use of code switching for Emirati students, particularly for the situation when PBL projects are being used for internal assessment for Business or IT coursework. UAE tertiary education institutions are faced with trying to meet their Emirati students' academic needs. As this thesis is showing, these Arabic English speaking students have varying levels of mastery of the English language in

speaking, writing and reading. While some of these students begin their education in their native language of Arabic or have classrooms which in which both English and Arabic are used, others are monolingual Arabic-speakers or have mastered only minimal vocabulary in the English language. Therefore, there appears to be a need to allow students to use Arabic within their coursework, which may better show the students' acquisition of Business and IT knowledge and could give a more accurate portrayal of this knowledge. One important benefit of being allowed to code switch between English and Arabic is that students may have an improved attitude to participating in PBL project work and accepting the pedagogy as useful in their tertiary education course work.

With these complexities, as described in the paragraphs above, it must be asked how the use of PBL in this UAE institution compares to what is experienced in Western universities where the pedagogy is undertaken using English as a first language. What can be highlighted is that there are not many differences in how Western students view PBL when compared to the students of this UAE institution. Students and teachers stated how difficult it is for students to adjust and participate in the PBL process. Similar findings by Wood (2006) and Alessio (2004) showed that even Western students found it difficult and problematic adapting to the PBL process.

Similarly, responses to the questionnaire indicated that students had difficulty understanding where to start their project, and students in Wood's (2006) study voiced similar concerns about having no idea where to get resources or how to approach their PBL assignments. Wood (2006) also found that the nursing students were concerned about the requirement of being self-directed, a similar concern for the students of this research. However, the ability of being self-directed for the Emirati students is likely to be of greater concern to them, because they have come from a more traditional rote learning education system. Self-direction can come in many forms, such as finding resources and finding solutions to problems such as a disagreement in group work. Without previous experience in such areas, as identified by Woods (2006) and this research, the aims of PBL may never be achieved. This thesis is similar to the research of Woods (2006) in that both groups of students, Western and non-Western, expressed anxiety about PBL projects, concern about getting failing grades and a lack of certainty in how well they were doing in their approach to their projects. As recognised by Woods, these concerns and problems always exist when student-centred approaches such as PBL are used in courses.

The students felt they needed more support from their teachers. Students of Woods' (2006) study also felt they needed more support and direction from their nursing training mentor. The nursing students had a difficult time adjusting to the practical component of their medical training course and felt at the beginning that they had no idea how to fit in with working in the field. It was only after a long period of adjustment that the students became more confident in participating in PBL-based assessment. However, the student call for stronger support was recognised by the researcher as necessary for student confidence and progress. In the UAE context, student support may need to be more focused because of the students' educational background and the requirement to use English, a foreign language. Support for English language learning and a slow adaption to the PBL process may be required more for Emirati students than what would be needed for Western students attending a Western university.

6.3 Uniqueness of the UAE context

Unique conditions in the UAE have affected the implementation of PBL. The findings have highlighted that of gender division, which strongly influenced PBL acceptance and implementation. Firstly, male students have been identified as not being enthused to stay longer in education (Engin & McKeown, 2016). This lack of desire to be educated can be highlighted in this research, such as the observation recorded in Class 1 Group 1 (See Chapter 4, page 137) and the students' lack of enthusiasm to participate in their PBL class. If these male students continue to feel discouraged to stay in university, they will not see it as a viable and valuable option which offers more long-time rewards. Male Emirati students have more personal freedom than their female counterparts, not only in their personal lives but also emotionally and financially. Teachers noted the differences observed in male students' approach to learning. The classroom observations of male students showed them disengaged and disinterested in learning. Their lack of motivation was perhaps possibly their downfall in getting less from their PBL experience than they could have. Teachers are expected to develop and administer effective assessment and to find ways to engage their male students in learning content.

Female Emirati students were noted as being motivated, hard-working and embracing their education in the observations, compared to the single male class. Teachers also suggested in the interviews that they have observed their female students to be more motivated in their studies than past male classes they have taught. Some of these females indicated they were struggling with group work and this may impact their motivation when

participating in PBL. Even though the real motivation behind their participation has not been identified, it could be that these students expected benefits from undertaking PBL assessment. Such external rewards may motivate these students to gain the benefits of being self-directed learners, but they face issues related to their level of English, and having to use English in the courses is not helping and prevents them from fully gaining the promised benefits.

The strong influence of the expatriate teacher and a rote learning system has an impact on Emirati students, which is reflected further when they reach UAE tertiary education. Some major changes are necessary for the UAE education system, for which there is a need for the majority of teachers teaching the younger generation to be Emirati. Whereas female Emirati students are mainly taught by female Emirati teachers (Ridge, 2011), male Emirati students are mostly taught by Middle Eastern-based expatriates from Jordan, Egypt and Palestine. These nationalities are similar culturally, and the teachers are using outdated pedagogical models and are not experienced in student-centred methods, which these male students need. With the incorporation of student-centred pedagogies such as PBL male students develop and demonstrate an increased opportunity to gain a greater interest in what they are learning through increased engagement with tasks that are relevant to them in their studies of Business and IT.

In the Introduction, it was noted that secondary school student graduates struggle within UAE tertiary education institutions, particularly those students who graduated from government-run public secondary schools. This was attributed to a range of reasons, particularly that secondary courses are taught completely in Arabic, inexperienced Middle Eastern teachers and a curriculum based on rote learning and teacher-directed pedagogy. With this background, Emirati students are held back when entering UAE institutions because they are then faced with Western-based student-centred pedagogy and teachers speaking English only. The result is that any other problems of learning for the current generation of tertiary education students are magnified. PBL pedagogy can help to partly remedy some of these issues by helping train students in research and information gathering, independent learning skills and working in groups.

There is a distortion of the employment pattern in the UAE, with two percent of employees in the private sector while 98 percent are in government (Gallacher, 2009). Emiratis generally prefer to work for the government, due to the higher salaries and benefits

and shorter working hours (Gallacher, 2009; Husain, 2007), and there is evidence that many struggle with the multicultural aspects of the private sector (see Schiphorst, 2004). However, the public sector has now reached a "saturation point" (UAE Yearbook, 2007, p. 217). The problem is one of demand and supply: there are fewer choices now in the public sector for Emirati graduates and according to Gallacher (2009), the private sector in the UAE is dominated by foreigners. In addition, there is concern that many students will graduate with a university degree without being sufficiently prepared and will thereby lack the ability to participate in and contribute to the country's economy (Gallacher, 2009).

Because of the imbalance of employment opportunities for Emirati students, there is concern by the Emirati government about how to find secure employment for the population. Government officials are especially concerned that Emirati are being undertrained due to an inefficient education system. Changes such as having English taught earlier in high school (Abu Dhabi Education Council, 2016) have been undertaken. A further step the government might take, in order to help students, gain metacognition and higher order skills so they can better meet the needs of the private sector, is to introduce PBL within the curriculum in all private and public high schools in the UAE. Doing so would help ensure better-trained students with experience in dealing with the types of practical issues that may confront them in the workforce. Developing a nationalised curriculum which allows PBL to be brought slowly into the education system would be an effective step towards developing a local Emirati population which can help support the private sector of the UAE.

Currently, Emirati graduates are competing with the current expatriate population in the private sector, with the expatriate population having better training and expertise in business and IT. Emirati students and the education ministries need to move away from the traditional pedagogy of rote learning to better train and equip the current and future Emirati student population. PBL is one pedagogy which can help aid that transition, by helping students learn to think independently and to move away from learning by rote.

There is a need for Emiratis to be involved in their education policy rather than importing overseas consultants who suggest a pick and mix of the best teaching approaches. What has resulted is an ad hoc education system. The result, as identified by Muysken and Nour (2006, page 957) is that the future economic situation in the UAE is being and will be held back by the ineffective education system. In addition, developing a more cultural

approach to PBL by recognising and incorporating Emirati cultural thinking and viewpoints into the pedagogy would serve to adapt PBL to better address the teaching/learning needs of Emirati students.

Teacher training of Emirati locals needs to remain a priority. Changes have been undertaken in recent years such as documented by Abri (cited in Zaman, 2016). In the last few years, more teacher training programs are appearing, such as the "The Apprenticeship Teacher Training (ATT) Program" which is a partnership between GEMS and the KHDA, which aim to train local Emirati teachers in new pedagogies such as PBL (GEMS Education, 2016). Training teachers in how to guide students in self-directed learning and how to guide their students in life term learning will mean better acceptance of pedagogies such as PBL by Emirati students.

The current secondary school system is also holding back student progress because it relies on memorisation, rote learning and high-stakes testing. The education ministry needs to move its education policy to involve more modern teaching techniques. However, the education system is challenged further by the students because they are unmotivated (Al Maskari, cited in Young, 2013), have low literacy in both Arabic and English (Masri, 2012), are underachieving (Elkadri, 2016) and rely on rote learning (Hatherley-Greene, as cited in Swan, 2013). There are policy plans currently being undertaken by education ministries which are an attempt to radically update and reform secondary schools. With having teaching approaches such as PBL included in secondary school, these plans intend to overcome issues associated with the rote-learning curriculum and better support students in achieving employment within the Emiratisation policy.

Teaching students to be autonomous and learn through meaning and hands-on experience will be a challenge, requiring teachers and students to be ready to undertake the necessary changes to allow these skills to be developed in the classroom. This educational initiative requires a new perspective within the UAE education system and will be faced with resistance by those who must implement it. The education system is in a difficult situation: there is a need for educational reform in practice to help it catch up with the latest economic and technology changes within the country, but these reforms will be held back by students' unwillingness to learn interactively, by teachers who use outdated teaching methods and by a history of Bedouin values, such as female students being faced with social barriers and family obligations.

In summary, there are three main challenges which face Emirati students. There is an issue with the relevance of the courses students are being currently given. If these courses could be enhanced with PBL pedagogy, then PBL should be enacted. With the incorporation of PBL, care must be taken so that historical and cultural values are integrated into the education system so the pedagogy is not overrun by Western mainstream education approaches. Secondly, consideration must be given to which language is used to teach courses. Bilingual education systems have worked well for some countries such as in Malaysia and Singapore. However, the language of instruction needs to ensure that courses are effectively instructed in Arabic in younger-aged students. Training of teachers needs to be undertaken in both English and Arabic to ensure effective teaching and learning. Teaching needs to be identified as a high-status job to help encourage more Emirati locals to see it as a viable career. Local teachers who are trained in strong teaching pedagogies such as PBL can help support the educational reforms that are currently being undertaken in the country. Thirdly, there needs to be adequate funding.

Given the current oil crisis being experienced within the Emirates, a lack of strong funding for reform and an expected growth in tertiary education student numbers, the government needs to ensure that action is taken now to prepare for the future. Otherwise, there will not be sufficient numbers of local students who will be able to work effectively in the private sector and replace a temporary transitional expatriate population. What is not wanted is an untrained local population unable to contribute to the economic development of the UAE, which would in turn adversely affect the local population.

6.4 Who will benefit from this thesis?

Emirati students will benefit from these findings as long as policy makers listen to their students' voices. Instead of having expectations that PBL pedagogy can be implemented in its purest form as an assessment or training tool, the pedagogy needs to be implemented earlier and gradually and given a local flavour. Emirati students can benefit from knowing they can learn the skills required by the UAE private sector by participating in PBL pedagogy. Course planners can benefit from this research by realising that students and teachers should be consulted more often, especially on pedagogical changes in the tertiary education curriculum. By having an understanding of those at the classroom level who are

going to be affected the most by curriculum plans, course planners will gain stronger insight into how things may need to be adjusted to the local UAE education conditions.

6.5 Limitations of this thesis

Limitations of this thesis relate to the methodology, which includes issues of the sample size, courses undertaken, and other institutions. Firstly, the sample size is a distinctive issue with this thesis. Only 45 male students participated and the majority of the student sample was female (129). Furthermore, only six teachers participated in interviews. Some questions of external validity possibly exist because of the small sample of male students and small sample of teachers. In regard to the students, the findings would have been improved if there had been a balance in number of males and females. If the sample were even, the results might be more reflective and generalisable to the UAE tertiary education student population. Therefore, it is difficult to claim that these small groups can explain male engagement with PBL in UAE tertiary education or broadly identify patterns of male Emirati students' cultural perspectives when engaging with PBL. However, one of the strengths of the triangulation methodology is that through its use, areas for further study can be identified. Possible future research areas could include how culture affects male and female engagement with PBL and how cultural-based teaching could help improve student engagement with PBL.

Secondly, there were limitations in the selection of only two courses relying on the Business and IT subject areas. Different results might have emerged from a wider range of courses such as Education, Engineering and Medical Training. The results may reflect a wider range of views on PBL because Business and IT are subjects requiring considerable practical hands-on experience and are often preparation for field-based careers.

Another limitation was the questionnaire. With a stronger literature review at the start of the thesis, weaknesses in the implementation of PBL within the UAE context would have been identified better. Then the statements used within the questionnaire could have been worded to address more specific issues, so that the student voice could be heard more clearly. My skills as an interviewer were also a factor which caused some limitation to the investigation, as they were not well honed at the beginning. This resulted in missed opportunities to explore deeper themes when the initial interviews were conducted; however, my interview skills improved greatly over the interviews conducted.

Yet another limitation consisted of time constraints, which played a major role in the outcome of this thesis. The data gathering happened over a relatively short two-week period of time. This time limitation restricted the use of a research method that could be enacted within that short time frame, with the method chosen including a one-off questionnaire, interviews with student groups and individual teachers and class observations. This use of three data collection methods actually constituted the greatest strength of the thesis, as triangulation of the three tools helped minimise threats to internal validity.

The small window of opportunity on time resulted in compromises in the research terms. The small number of teachers and students available for the research were nearly completing their PBL course work, and I had to undertake the questionnaires, interviews and class observations within a limited time frame. Had there been more time and more resources available, I could have interviewed more teachers and students, and themes identified in this thesis would have benefited from deeper exploration than was ultimately possible. Nevertheless, the insights that I have gathered from the students and teachers warrant further investigation and add to knowledge about the field of UAE tertiary education. The last limitation is that the research area was restricted to the male and female campuses of only one institution. Again, because of time constraints, no other institution was invited or included. Had students and teachers from other institutions participated, the results might have been more generalisable and applicable to the UAE student population in relation to PBL.

Though these limitations existed, I maintained a number of ways to ensure the data gathering remained valid and reliable. Validity and reliability are important concepts for this thesis, and this is highlighted in a number of ways. Validity is the idea that the design and the methods of a study involve collecting data which truly represent the phenomenon that is being investigated. For this thesis, validity is secured by a number of factors. Firstly, validity checks were made with the teachers and students to ensure that they understood what was meant by PBL. Secondly, validity was strengthened by making sure that each questionnaire statement was worded to focus on one particular PBL theme. Thirdly, during each interview, each student and teacher was asked questions directly related to PBL. Fourthly, the validity is supported in that teachers and students were answering questions based on their own knowledge about PBL.

The reliability can be assured because of the mixed method approach used by this research. By using different tools to collect data, (in this case, questionnaires, interviews and

observations); and by collecting data from a range of sources (that being teachers and students) that this investigation is made reliable (Zohrabi, 2013). With using a range of tools and populations, the quality of results could be obtained if the similar studies were undertaken at other tertiary education institutions within the UAE. Zohrabi (2013) states that reliability can be achieved because by: "…collecting varied types of information through different sources can enhance the reliability of the data and the results. In this way, the replication of the study can be carried out fairly easily."

Therefore, with this perspective, the questionnaire can be used again with other student PBL groups in other tertiary education institutions and this data can be confirmed or disputed by using other tools such as interviews or class observations. The observations need to occur during the middle or at the end of the research so to give time to collect data, especially if there are hindrances that could interfere with data collection. Consequently, since the tools are valid instruments for this research, it would be possible to use the same questionnaire and interviews with other samples of students and teachers, and similar results would be obtained. Another way the findings are reliable was that data results were crosschecked against certain questions from the questionnaire, and those students who were found to be contradictory in their answers were withdrawn from the analysis sample.

In summary, the tools (questionnaire, interviews and observations) used to test the students' and teachers' responses to PBL are valid tools to use to investigate attitudes towards this pedagogy. While there are issues with using a small sample of teachers and male students, any generalisations given by this research and applied further to the larger UAE university student population must be done with care, but that the results are only suggestive when applied to the larger UAE tertiary education population. In future similar UAE studies, it would be possible to gain similar questionnaire and interview answers from Emirati students and expatriate teachers who are well experienced in PBL. To minimise issues such as misinterpretation of the questionnaires or interviews, Conway, Jako and Goodman (1995) suggest that the researcher use one-to-one interviews with standardised questions, which enables the highest reliability to be achieved. Another way to ensure greater reliability is to have the interviewers trained in the interview process, which reduces researcher bias. When those conditions are met, the answers found in this research would be expected to be found in contexts, being Middle Eastern tertiary education PBL classrooms.

6.6 Future Directions

There are a number of ways this research could be improved, and this section has some suggestions. To generate achievable strategies for curriculum development, more case studies at the local level on changes in secondary schools are needed. Such studies could focus on the transition to learning English earlier and to instituting an earlier focus on metacognition. Further assessments of student satisfaction with the effectiveness of PBL projects are also needed. Researchers could also investigate how this pedagogy could be adapted to fit culturally specific education environments. The implementation of the following strategies in future research would facilitate the attainment of these goals: pre- and post-surveys of students' attitudes towards their experiences of a project, in-depth interviews of students and the examination of student journals recording their experiences with the project. Use of such methods would allow Emirati students greater freedom to express themselves and provide a stronger indication of their thoughts about their projects while they move through the PBL process. Lastly, including the students' levels of English as a variable for this type of research would provide greater insight into the student background and research into how this variable affects their progress with PBL projects.

This field of research would benefit from a longitudinal study of students' impressions and experiences of PBL within the UAE, with data collected when students begin the program, midway through degree courses and after graduation. Another valuable study would be to investigate how highly Emirati students value the Business and IT knowledge taught in PBL. It is from student responses that education institutions will gain an understanding of the students' appreciation of PBL teaching methods and their confidence in the level of learning they have achieved within the PBL environment. With a better understanding of student confidence and the value of the newer PBL pedagogy, educational institutions could adapt to better ensure student satisfaction and achievement. Another reason why this thesis is reliable is that the students shared attitudes with the researcher on their personal experiences with PBL through the questionnaire or interviews. Trustworthiness of the data was maintained through the student and teacher voice true to the location of the participants at the time.

PBL is an essential pedagogy for Emirati tertiary education Business and IT curriculums. It enables students to learn new knowledge from a well-designed curriculum that integrates Business and IT employability skills and effective learning skills such as communication with others, problem-solving and prioritisation of time. PBL can be made

more effective with the addition of CST to form a hybridised pedagogy, which can help students adapt to an ever-changing economic landscape. The PBL pedagogy can benefit Emirati students in helping them take responsibility for the learning and actions which will shape their future employment opportunities. The pedagogy furthers the goal of Emirati tertiary education institutions to have graduates from their Business and IT curriculums who will become effective, employable workers for the local workforce.

Though the PBL pedagogy is Western-based, it is still valuable to tertiary education in the UAE as an avenue for improving Emirati student learning. The strongest recommendation this researcher recommends that a hybridisation of CST and PBL pedagogies would encourage greater satisfaction among Emirati students and engender a higher level of engagement with Business and IT projects in their content-based classes. What is known is that with PBL, Emirati students are gaining a richer learning experience than their previous learning experiences which focused on the traditional delivery style of learning. The issue tertiary education in the UAE now has is to find the most convenient way to effectively implement PBL in university courses in order to support students in gaining essential knowledge. Most importantly, the students will be graduating with skills that are necessary for employment in the Business and IT employment fields.

6.7 Summary

Chapter 6 set out to summarise the findings for this thesis. Section 6.1 presented a summary of the findings. This was followed by a reflection on the thesis in Section 6.2. In Section 6.3, the uniqueness of the UAE context was examined in regard to how differing factors affect education changes. This was followed by a short discussion in Section 6.4 on those groups who will benefit from this research. Limitations were identified in Section 6.5, and directions for future studies were suggested in Section 6.6.

CHAPTER 7: RECOMMENDATIONS

7.0 Overview

From the results from Chapter 4 and the discussion in Chapter 5, some recommendations are made for UAE tertiary education course planners and educators. The students and teachers have identified a number of relevant issues which highlight the benefits of having PBL projects, as well as issues which limit their successful implementation in Business and IT courses. The majority of the results are from analysis of data collected from a questionnaire complemented by interviews with the majority of research respondents being female Emirati students, therefore the recommendations stated in this chapter could be mainly asserted to what might be occurring at a female campus. The chapter begins with giving recommendations for how to improve PBL in the UAE tertiary education curriculum (7.1), practical recommendations are given to teachers (7.2), recommendations are given to curriculum planners (7.3); then recommendations are given in how curriculum policy could be implemented in Section 7.4. The chapter concludes with a summary of the thesis in Section 7.5.

7.1 Recommendations for curriculum implementation

It is recommended that a hybridisation of pedagogies be adopted as a way to improve the implementation of PBL in UAE tertiary education to increase Emirati student satisfaction with their learning experiences in courses such as Business and IT studies. In order to accommodate the needs of their students, the implementation of such hybridisation would require input from the university curriculum designers in consultation with the teachers who are responsible for adapting the pedagogies. It is the teachers who are in the prime position to identify and reflect on what is happening in the classroom and they should have the flexibility to adapt the curriculum to fit the evolving needs of their students.

It is recommended that culturally sensitive teaching (CST), also known as cultural responsive teaching (CRT), be combined with PBL to include aspects of the Emirati culture in the classroom. Including local culture and a CST approach in teaching could ensure students achieve better learning and outcomes in the classroom. Teachers could become ethnographic action researchers and learn the behaviour and historical nuances of the local Emirati culture. Aspects of culture could be included in the classroom to the advantage of the students. Business and IT lessons could then be organised with culturally appropriate lessons, with case studies and projects being designed with relevance to the students.

While the teacher can encourage the use of Cultural Sensitive Teaching (CST) in teaching the project and in shaping the assessment, there are many cultural differences across the UAE to take account of when devising relevant project topics. Therefore, the teacher needs to be aware of suitable project ideas and gain the classroom consensus for the project idea to be suitable and culturally appropriate.

Through combining the CST and PBL pedagogies, the best of both could be implemented and contribute to Emirati students achieving a higher level of engagement and learning. This knowledge of PBL pedagogy and the pre- requisite soft skills are lacking in the concept map. Also, what is lacking in Figure 2.1. is the need for the teacher to be firstly, empathetic to the local culture; and secondly, the teacher needs to be aware of the educational background of their students who are ill-prepared for PBL projects. The students' educational background is mainly set in an education system based in rote learning (see Swan, 2013) which does not prepare or train the students in a range of soft skills such as group discussion skills, motivation and patience.

These are necessary skills which help the students function better in PBL projects. Without the skills Emirati students find it difficult to engage in PBL projects. A platform for incorporating CST with PBL is to design projects that allow the Emirati culture to present itself. This inquiry has identified the areas of procrastination, time management, management of group dynamics, and self-direction as contributing to students' dislike of PBL pedagogies: projects that invite students to investigate local knowledge and incorporate their culture could overcome these issues. Incorporating Emirati culture into business practices could include the Islamic perspective of managing team conflict and an Islamic view on business partnerships. PBL is an innovative pedagogical approach to teaching the subjects of Business and IT in content-based classes. When combined with CST and Emirati cultural perspectives, students will be able to utilize their creativity, develop learning skills and expand their knowledge (see Figure 7.1). It is suggested also that combining PBL and Culturally Sensitive Teaching (CST) in the classroom will enable teachers to build a stronger atmosphere of trust where Emirati students feel respected, recognised, free to express their thoughts and to question the teacher and their learning. Weinstein, Curran and Tomlinson-Clarke, (2003, p. 270) defined CST as teachers "develop[ing] the knowledge, skills, and predispositions to teach children from diverse racial, ethnic, language, and social class backgrounds.

McBride (2010) stated that once Emirati students feel safe in the classroom and with the teacher, they are willing to undertake risks and share their personal views on the material they are studying. Rogers (1980), in his therapeutic orientation perspective for the classroom, recommended that teachers be fair in classroom decisions that affect students, thereby demonstrating a strong empathetic understanding and creating positive attitudes. Herman and Bailey (1991) suggested that teachers who reflect the personality characteristics of patience, flexibility and understanding of the students' backgrounds build strong positive rapport with students and gain their cooperation. Emirati students would welcome a teacher that understands their cultural perspective and incorporates it in the classroom (see Figure 7.1). That is, a teacher who gains a deeper understanding of the culture and lifestyles of Emirati students could adapt CT classes in Business and IT to be more culturally relevant so to gain student support and engage their interest in a PBL project. This could be done through careful planning of project assignments such as, inviting students to undertake research what issues arise for locals living in the community. To help with time management issues, students could create a daily or weekly schedule of activities which would show how much time of the day is for personal activities, family responsibilities and how study could be fitted around those commitments. This activity would demonstrate to students the importance of time management and how it can help them organise study around other commitments.

When teaching in a foreign country such as in the Gulf Cooperation Council (GCC) region, expatriate teachers need to make a genuine effort to understand the local community (Ward & William, 1999). This means the teacher must make the effort to become familiar with the local Emirati community's culture, religious customs, and beliefs. When combining a CST approach with PBL projects in Business and IT classes, teachers need to make a concerted effort to be more culturally sensitive when there are cultural and linguistic differences between their students and themselves. Further, western expatriate teachers need greater awareness of how the Muslim faith relates to the school environment; for instance, through taking the time to understand how Ramadan could impact on student learning when it occurs during the school term, and making adjustment to classroom teaching to accommodate students who are undertaking daylong fasting. Teaching and learning during this time is energy-taxing for both the teacher and students but teachers can still engage students in learning by adjusting lesson concentration times and undertaking group activities in the classroom period. Cultural knowledge should be the focus of orientation for new expatriate

teachers and continuing professional development for experienced teachers to ensure knowledge of such matters continues to develop and be applied.

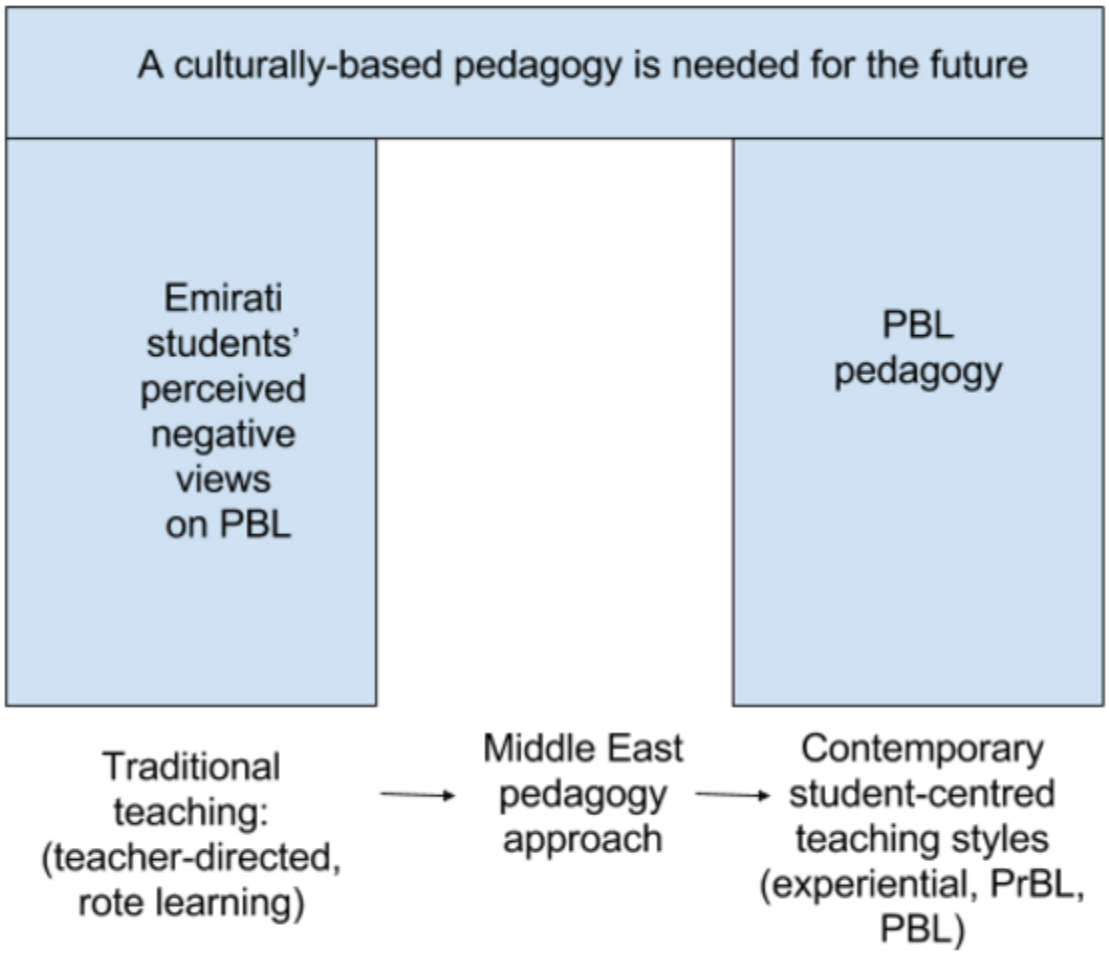

Figure 7.1: *Culturally-based pedagogy bridges the gap between traditional and contemporary styles of teaching*

7.2 Practical recommendations for teachers

To help prepare students with a PBL-based curriculum in Business or IT, teachers need to consider how much time students need to complete the project. Teachers need to ensure that students are given suitable time to complete their projects. To overcome the problems of a lack of understanding with the PBL process, students need to be given cues for when to complete certain PBL tasks. The students are novice problem-solvers and will benefit from this type of system as it offers support and direction.

Students need to be given projects that match their level of English proficiency. With this in mind, teachers need to consider pragmatically how to prepare projects for the course

and how conveniently to disseminate information to students. This could mean modifying the project process by breaking it into segments; simplifying the language in project instructions and handouts to facilitate reading and understanding; and giving students time to absorb material circulated. Another adjustment to classroom practice could simply be by teachers ensuring spoken language is concise, speech is paced, attention given to an understanding of instructions and information is checked. Crismore (2003) also recommends that when introducing CST activities where a subject is being taught in a foreign language, teachers assist students by anticipating concepts, vocabulary and phrases that may not be understood and be prepared to define and explain those terms in advance.

To help gain student interest and engagement in Business and IT based-projects, it is recommended that projects be linked to course material and based on Emirati issues. One of the challenges for Western teachers in the GCC is how to match suitable course material to the Emirati classroom culture. Dimmock and Walker (2000) suggest that it is possible to include both western and non-western cultural concepts and doing this allows cultural relevancy in the classroom, which engages students to reflect on and apply the key core knowledge concepts they are learning. Articles in local newspapers about local situations and conditions in Businesses and/or IT are authentic resources for case studies where students provide solutions to situations that are unique to the region; for example, employment contracts for expatriate Asians and unfair business practices that impinge on business success.

Teachers will find there is little published material about certain key concepts relating to Business and IT in the Emirati environment. Therefore, the teacher is forced to undertake the development of new resources to help students gain an understanding of concepts that form the basic knowledge in their courses. PBL projects are a useful way for students to gain knowledge relevant to their subject area and culture as well as learn extension skills such as managing time and group dynamics. A key to successful learning is that projects work well in the classroom if the teacher creates a safe and trusting classroom environment where students are willing to share how they construct and evaluate knowledge based on their world-views. This information can then be used to make the course content more relevant to the students' experiences (Herman & Bailey, 1991). As teachers prepare well planned projects their students gain support and reasoned advice on the decisions they have to make in solving problem or in group discussions. In non-threatening environments students feel comfortable

seeking clarification and advice.

A number of other recommendations that this research can provide for helping support Emirati students are made: encourage a stronger emphasis on PBL projects; students should be given coaching in group negotiation and conflict; outcomes that can achieved by developing independent learning skills need to be explained; group work should be encouraged; allow students time to consult with teachers; break projects into smaller workable chunks; teach time management; provide time in class for students to work on their group projects. These recommendations are discussed further in the following bullet points.

- Emirati students consider projects fun and interesting, which suggests that curriculum and coursework planners in tertiary education institutions within the UAE could encourage a stronger emphasis on PBL projects. It has also found that Emirati students are engaged in completing their projects, suggesting that more projects could be set in class. The downside of this is the risk that students may not absorb as much serious learning of new knowledge as could be achieved in normal lectures. Therefore, more time must be given students for the completion of their projects.

- Two situations were found to affect Emirati students' attitudes to group projects. While the students preferred to work in groups, they disliked group work when group members freeloaded or did not attend meetings on time. Therefore, students should be given coaching in group negotiation and conflict before the groups are formed.

- There are certain expectations of PBL which Emirati students have not experienced in past education and find difficult to adjust to: being reflective thinkers and working independently. Therefore, it is important for first and second year foundational students to have guided coaching in these skills either before or during their study of the English language. They require coaching on how to become stronger independent learners. At the outset of the course, the long-term outcomes that can be achieved by developing these skills need to be carefully explained.

- Emirati students are from a collective culture where working in groups is accepted and practiced. Therefore, group work on projects is a natural alternative for learning and should be encouraged in order to take advantage of the natural cultural tendencies of the people.

- Some students found the project process difficult and frustrating. This could be because of unfamiliarity with PBL pedagogies and therefore an inability to perform successfully in them. The researcher recommends that teachers and course designers plan courses that allow students time to consult with teachers to allay feelings of insecurity when approaching projects.

- One finding from the teacher interviews was the idea of breaking projects into smaller workable chunks, and in that way lessening the stress experienced by students. It is this researcher's recommendation that other teachers follow this example. Reducing stress among students is one way of preventing rushed and low-quality assignments being submitted.

- It was found that Emirati students have poor time-management skills. Students need to be taught, especially in university foundation courses, about time management. The foundation courses are a good opportunity for students to develop these skills before starting on bachelor degrees.

- Those students who find projects frustrating and difficult need to be encouraged to undertake an attitude change and be flexible to learning through new and unfamiliar pedagogies if PBL is to be continued in the UAE higher education system. If students are to be exposed to PBL over their time in higher education, the exposure should be phased into the curriculum in a way that enhances male students in particular to be willing to participate in PBL projects. If they are led to see the benefits of the pedagogy, students may accept the pedagogy. A positive outcome would be that the students become engaged and participate in PBL projects because they realise the benefits of an interactive learning platform.

- Teachers need to be reminded of the importance of providing time in class for students to work on their group projects. This not only allows opportunities for the teacher to gauge how much work has been completed, but also to identify and support dysfunctional groups. Early identification of dysfunction means the teacher can provide early mediation.

7.3 Recommendations for curriculum planners

Firstly, this research highlights the importance of considering the student and teacher

voices when bringing in curriculum changes. Therefore, pedagogies should not be imposed on students and teachers but these groups should be consulted as partners of interest in curriculum changes. By gauging student and teachers voices on pedagogical changes, curriculum planners can prepare more effective pedagogy integration. Student and teacher voices should not be dismissed as irrelevant but included because the changes affect their study performance and classroom environment. Secondly, curriculum planners for PBL projects need to plan around the difficult factors that presented during group work such as non-contributing students or domineering students. Students new to group work could work in pairs at first and gradually learn how to work with larger group numbers. By providing students with opportunities to participate in group work will allow students to develop essential metacognitive and interpersonal skills. To make learning through projects more successful in a CT-based Business or IT classroom, teachers are recommended to follow Holliday's (1994) recommendation that the teacher learn from the students. Learning from the students is a valuable strategy because it provides insights into what the students need from their teachers to enable them to successfully complete their projects. When students are coping with an unfamiliar pedagogy and the teacher with an unfamiliar culture, a two-way process of the teacher providing feedback to students on their learning and students providing feedback to the teachers on the challenges they are facing would allow the project to be re-adjusted to fit the needs of the students. Thus, student frustration with PBL would be addressed rather than consolidated.

Giving students an opportunity to provide anonymous written feedback opens an avenue for them to share willingly, and reduces cultural reluctance to question the teacher and the sense of losing face that occurs when feedback is given verbally. Emirati students would appreciate being able to share their thoughts in this way and it would reduce the frustration caused by lack of clarity in their communication because of a low level of English language proficiency. The feedback received could alert the teacher to any adjustments needed to better enable students to complete the project and to ways of enhancing supportive advice before difficulties become serious and affect students' progress in the course. Curriculum planners need to consider how western-based pedagogies are included in the GCC area. This means that the results and assumptions of PBL may not be successful within a GCC environment because of the local cultural behaviour and attitude of the local student population. Therefore, planners need to be aware of the differences and expectations of both cultures and make necessary adaptations to how western-based pedagogies are used outside the western education based environment. What has to be recognised is that the local planners

cannot expect the same results and expectations to be the same when these pedagogies are brought from overseas.

7.4 Curriculum Policy Implementation

- Course planners and teachers should be encouraged to incorporate PBL in UAE tertiary education courses since Emirati students recognise the benefits of the pedagogy.

- Since PBL has been found to be motivating Emirati students to learn, the pedagogy should become an essential element for Business and IT courses based in UAE tertiary education.

- Since the students have identified they have an issue with time management, course planners and teachers need to consider this issue when asking Emirati students to participate in PBL projects. It means these students need to be taught awareness of time management. The same suggestion was made by Dawson and Rakes (2004), where they endorsed time schedule training for Emirati students. With better time management skills, these students' complaints about how time-consuming projects are can be lessened and fewer requests for time extensions will be presented to teachers. A practical way of achieving this is for the teachers to have students take the first step in organising their time by creating visual graphic organisers that distinguish between time for study and outside influences (Jackson, 2012).

- Students need better English language support such as a focus on vocabulary and reading comprehension. A focus on language skills as part of doing PBL projects could support students with lower levels of English proficiency. Course planners may need to take careful consideration of how to do projects in a language that the students are not proficient in. Teachers recognise the challenge their students have doing PBL projects in a second language and that it does have a significant impact on student progress. English proficiency can be adverse factor affecting student motivation, and this impacts Emirati student satisfaction with the PBL pedagogy. This situation needs further consideration for future research.

- As there is limited employment capacity in the police force and military and consequently male students need to consider alternative careers such as setting up

their own business. The education system has responsibility for preparing them for employment in the private sector. This could be done by encouraging understanding among UAE male students that PBL projects in tertiary education institutions provide them with opportunities to experience the realities of the workforce in Business and IT. This could be reinforced by inviting role model entrepreneurs to classrooms to share experiences with students and highlight how successful they could be in Business or IT with a higher-level education qualification. The role of curriculum designers and teachers is to adapt PBL pedagogies to show male Emirati students that learning can be interesting and to prepare them for undertaking projects which, although foreign to the students, provide more creative opportunities for learning than the teacher-directed styles applied in secondary school.

- Since female and male Emirati students recognise that projects empower them in their learning and that the positive outcomes will provide stronger advantages in future employment, the application of PBL should be further encouraged in UAE tertiary education courses. Projects give Emirati students, in particular female students, an opportunity to develop the skills and attributes necessary to take on a patriotic responsibility to contribute to the development of their country in the future (Officer of the High Commission, 2008).

- Lastly, it is recommended that PBL projects not be introduced in the first or second year of the student's course of business or it, but as a major form of assessment in the final year of the student's coursework. However, if course planners feel that it is important for the students to gain early exposure to the pedagogy, then a project in the first or second year should be short and allow the students to develop a conceptual understanding of research and what is involved in a PBL project. A long-term project (such as six weeks) should be included as part of the assessment for the third year for these students. Progressive stages of PBL projects for engineering students from different years of students were found to be a suitable way to develop student learning (Graham, 2010). A similar approach may be applied in the UAE.

7.5 Thesis Summary

This chapter has presented a number of recommendations for curriculum implementation, teacher use of PBL, course planners and for curriculum policy. These

recommendations are specific for the UAE tertiary education context. In Chapter 7, a review of the thesis, its limitations and conclusions are given.

In conclusion, PBL cannot satisfy every Emirati learner, but it has been found by this study, that in general, many respondents endorsed this pedagogy in their Business/IT courses. It can be seen that PBL is one of many pedagogies that can improve students' learning within UAE tertiary education. From what has been found in this study, some students do find PBL pedagogy frustrating, in regards to group work and finding resources, so teachers need to be aware of these issues. Teachers need to prepare well in advance strategies which will enhance group work. They have to scaffold the project in such a way as to provide greater student enjoyment to participate in group work and PBL projects. Even though some administrators may argue that learners are not able to understand how to learn Business or IT in the most pragmatic way, curriculum designers and policy administration need to consider how students prefer to learn their subjects. The student and expatriate teachers' views can prove useful for tertiary education course planners when evaluating PBL. Course planners can use this research to gain an insight into how successfully PBL is working within some tertiary education courses, what issues are identified by students related to making the pedagogy successful and what reduces the effectiveness of PBL practice.

It is important to incorporate the students' voices in how they learn, particularly when evaluating the incorporation of a pedagogy which is influencing their education achievement and learning success. It was found that there for a majority of the respondents, the students were happy with participating in the pedagogy, as indicated from the data from the questionnaire, interviews and class observations. There was a small group of learners who were unhappy with PBL. Therefore, it is the recommendation of the researcher from this thesis that PBL pedagogy be incorporated in Business and IT coursework because it is supporting the students learning and self-directed development. The pedagogy should not be rejected as a headache for either students, teachers or course administrators, but rather as the students stating particularly in the interviews that more teacher support and resources should be given. With these two particular issues being discussed at length by the students, it could be possible to improve Emirati student satisfaction with the pedagogy.

This inquiry's journey began as a journey into an unknown. It was unknown by the researcher what was the views of Emirati students and expatriate teacher's views towards

PBL. Thus, this thesis has answered the hypothesis question that the researcher posed to himself, in that now he knows the thoughts and feelings teachers and students have towards using PBL to learn Business and IT within UAE tertiary education. There is a range of existing and conflicting views in the field of research into Emirati student responses to PBL. This study continues the journey as more research is required to gain a more culturally sensitive understanding of the complexity of introducing so that this area of research is no longer a "mysterious serpent green."

This research has also highlighted the importance of using student and teacher voices when evaluating a newly introduced pedagogy. From their perspectives, PBL in its pure form may not be appropriate for all Emirati students, particularly those who have come from an education background which is didactic and teacher-directed. The student and teacher voices highlight issues which would otherwise be ignored by course planners, such as students needing more support in handling working in a group, accessing and analysing information and participating in problem-solving. By hearing and recognising student and teacher voices, PBL pedagogy implementation can be improved, and students can gain the benefits that this pedagogy offers, such as developing the necessary skills for future employment. Having a hybrid version of PBL in tertiary education, UAE students may have a better chance to gain effective skills of problem-solving, communication and team building, as well as to improve their literacy and numeracy. Listening to these voices means that improvements can be made in giving these students a new set of social skills and cultural competencies for twenty-first-century education. The major objective their teachers are striving for is that these students actively participate in open-ended problem-solving, develop a culture of participation and are given the time to find optimal solutions.

Though student satisfaction is important, it is also important that tertiary education courses prepare students with the skills they need for the future. PBL can equip Emirati students with essential skills, such as time management, teamwork and metacognition skills, but it is up to the institution to use the above recommendations to help create a positive student attitude of acceptance of PBL within their courses. Business and IT students face challenges in the workforce, and it is the responsibility of tertiary education to prepare these students with the skills required for long-term success. Education planners need to understand that different instructional pedagogies impact differently on student satisfaction and learning; therefore, careful decisions and adjustments need to be made when implementing alternative

pedagogies into the tertiary education curriculum. This thesis has addressed the gap of the lack of understanding of how PBL is being used in UAE tertiary education by investigating the thoughts and feelings of Emirati students and teachers towards PBL in Business and IT courses. It has also provided an increased understanding of their perceptions, which validate that this is an appropriate pedagogy for UAE tertiary education.

The researcher recommends that PBL will provide benefits in UAE tertiary education setting if attention is paid to developing the right support and teaching conditions. Another matter which has been highlighted is that by giving students and teachers a voice enables curriculum planners to respect the views of these two groups and to provide them with real opportunities to exercise their views in curriculum development. PBL could be very successful in UAE tertiary education if scaffolded through preparation and guided exercises that teach the necessary skills. If students recognise the value of these skills and perceive that they are developing the skills by participating in PBL pedagogy, this would suggest that PBL partly meets the desired goal of employment experts and UAE education policy makers. The current education focus of the UAE federal government is to develop an education system which meets national employment expectations for a globally influenced society (Ministry of Education (MOE), 2010).

Therefore, to gain an understanding of how this goal might be better fulfilled, this research used Emirati student and teacher evaluations of the newly introduced pedagogy of PBL to gain a perspective on whether increased institution of the pedagogy in UAE tertiary education would contribute to the federal MOE goals. Using student and teacher voices, the research identified factors which can help in understanding how PBL is being received in UAE tertiary education. The thesis also identified factors that could be altered to better enable PBL to enhance the learning experiences of Emirati students and fulfil the desired goal of deeper learning. This information can help in the goal of preparing students to contribute to a globally integrated technically influenced world. The knowledge gained can be used to help evaluate the effectiveness of PBL within UAE tertiary education so that changes can be put in place to help produce a better education curriculum (Manzar & Manzar, 2011). UAE tertiary education institutions do need to be cautious when implementing PBL in their courses because challenges exist for the implementation of PBL and that the Emirati students will require strong support. Given that support, Emirati students will likely benefit from PBL by gaining lifelong learning skills which will meet the demands of future employers.

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APPENDICES

Appendix A: Observation Sheet for a 50-minute class

	5	10	15	20	25	30	35	40	45	50
Individual Student										
Group Student										

Engagement Rating

(6) = Fully active engagement (e.g. participating in project)

(5) = semi active engagement (e.g.: participating but distracted like on iPad game)

(4) = and passive engagement (e.g. looking at work but not actively engaging).

(3) = off task motor- (e.g.: playing on iPad,

Disengagement Rating

(2) off task verbal- (e.g.: talking to another group member about an off topic,

(1) off task passive (e.g. looking around, looking out window, etc.).

(0) = off task active (e.g.: sleeping)

Note: one student and one group will be observed and recorded every five minutes on what they are doing in the classroom. The coding sheet gives a definition between 1 to 6 on assisting a possible level of engagement or disengagement.

Appendix B: Letter of invitation for Women students at Al Ain Higher Colleges of Technology (Women's Campus)

April 2011

Title of Study: "Attitudes of Emirati students and expatriate teachers to Project-Based Learning: A case study".

Principal Investigator: Trevor Ray, Doctor of Education Candidate, Faculty of Education, University of Southern Queensland, Australia

Faculty Supervisor: Ann Dashwood, Supervisor, Faculty of Education, University of Southern Queensland, Australia

Meeting Time: September 15th 2011
I invite you to participate in a research study designed to understand students' and teachers' expectations of doing projects in the curriculum while in the Higher Colleges of Technology. The expected duration is 15 minutes for each questionnaire. There are two questionnaires which are done at the start of the start and end of the project. There is also an opportunity to participate in two focus group interviews to discuss PBL which are 40 minutes long. This research should benefit you on informing you of the general perspectives and attitudes towards PBL within the UAE.

If you have any pertinent questions about your rights as a research participant, please contact the Office of Research and Higher Degrees of the University of Southern Queensland at orhd@usq.edu.au. If you have any questions, please feel free to contact me.

Thank you

Trevor Ray

Trevor Ray	Ann Dashwood
Principal researcher	USQ Supervisor
050 109 1730	61 7 4631 1806
theburiedscrolls@yahoo.com	ann.dashwood@usq.edu.au

This investigation has been reviewed and received ethics clearance through Office of Research and Higher Degrees of the University of Southern Queensland

Appendix C: Letter of invitation for men students at Al Ain Higher Colleges of Technology (Men's Campus)

Title of Study: "Attitudes of Emirati students and expatriate teachers to Project-Based Learning: A case study".

Principal Investigator: Trevor Ray, Doctor of Education Candidate, Faculty of Education, University of Southern Queensland, Australia

Faculty Supervisor: Ann Dashwood, Supervisor, Faculty of Education, University of Southern Queensland, Australia

Meeting Time: September 15th 2011

I invite you to participate in a study designed to understand students' and teachers' expectations of doing projects in the curriculum while in the Higher Colleges of Technology. The expected duration of the investigation is 3 weeks. The study consists of two questionnaires (one at the start and end of a project which will take 15 minutes to complete), a class observations (1 hour a week for six weeks), and there is an opportunity for six volunteers to be interviewed for 30 minutes. This research should benefit students generally in relation to Problem-Based Learning in the Tertiary education sector.

If you have any questions about your rights as a research participant, please contact the Office of Research and Higher Degrees of the University of Southern Queensland at orhd@usq.edu.au. If you have any other questions, please contact me.
Thank you, Trevor Ray

Trevor Ray	Ann Dashwood
Principal Researcher	USQ Supervisor
050 109 1730	61 7 4631 1806
theburiedscrolls@yahoo.com	ann.dashwood@usq.edu.au

This investigation has been reviewed and received ethics clearance through Office of Research and Higher Degrees of the University of Southern Queensland

Appendix D: Letter of invitation for teachers at Al Ain Higher Colleges of Technology (Men's and Women's Campus)

Title of Study: "Attitudes of Emirati students and expatriate teachers to Project-Based Learning: A case study".

Principal Investigator: Trevor Ray, Doctor of Education Candidate, Faculty of Education, University of Southern Queensland, Australia

Faculty Supervisor: Ann Dashwood, Supervisor, Faculty of Education, University of Southern Queensland, Australia

Meeting Time: September 15th 2011

I invite you to participate in research study designed to understand students' and teachers' expectations of doing projects in the curriculum while in the Higher Colleges of Technology. The expected duration is a 15 minute online questionnaire. In addition, you can volunteer for a phone interview which is expected to take 30 minutes.
Results of the findings will be available on request and should benefit teachers by providing general perspectives and attitudes towards Project-Based Learning at student and teacher levels.
If you have any questions about your rights as a research participant, please contact the Office of Research and Higher Degrees of the University of Southern Queensland at orhd@usq.edu.au. If you have any other questions, please feel free to contact me.

Thank you, Trevor Ray

Trevor Ray	Ann Dashwood
Principal researcher	USQ Supervisor
050 109 1730	61 7 4631 1806
theburiedscrolls@yahoo.com	ann.dashwood@usq.edu.au

This research has been reviewed and received ethics clearance through Office of Research and Higher Degrees of the University of Southern Queensland

Appendix E: Ethics Approval

HREC Approval Number: H11REA086
Full Project Title: Attitudes of Emirati students and expatriate teachers to Project-Based Learning: A case study
Principal Researcher: Trevor Ray
Other Researcher(s): none

I would like to invite you to take part in this investigation into your attitudes towards PBL.

1. Procedures

Participation in this project will involve

- Two questionnaires (15 minutes each), an interview (40 minutes) and class observations (once a week), six volunteers are invited to participate in a 30 minute semi-structured interview.
- The research will be monitored by the researcher.
- The benefit to doing this investigation is being involved in academic research.
- There are no risks when participating in this research.

2. Voluntary Participation

Participation is entirely voluntary. If you do not wish to take part, you are not obliged to. If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. Any information already obtained from you will be destroyed.
Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with the University of Southern Queensland and the Higher Colleges of Technology (Al Ain).
Please notify the researcher if you decide to withdraw from this project.

Should you have any queries regarding the progress or conduct of this research, you can contact the principal researcher:

Trevor Ray
Higher Colleges of Technology
PO BOX 17155, Al Ain
Phone: 050 109 1730
After hours: 050 109 1730

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant, please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

HREC Approval Number: H11REA086

TO: The participants of this investigation
Full Project Title: Attitudes of Emirati students and expatriate teachers to Project-Based Learning: A case study
Principal Researcher: Trevor Ray
Student Researcher: none
Associate Researcher(s): none

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.

- I understand the purpose of the research project and my involvement in it.

- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.

- I confirm that I am over 18 years of age.

- I understand that while information gained during the data gathering period may be published, I will not be identified and my personal results will remain confidential.

- I understand that the class observation video tape and interview cassette tape will be retained, stored in a secure safe in a secure room. Only the researcher has access to this room and access is limited by secure lock.

- I understand that I could be audio taped and videotaped during the investigation.

Name of participant…….....

Signed…….Date…….
If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant, please feel free to contact the University of Southern Queensland Ethics Officer on the following details.
Ethics and Research Integrity Officer Office of Research and Higher Degrees

HREC Approval Number: H11REA086
Full Project Title: Attitudes of Emirati students and expatriate teachers to Project-Based Learning: A case study
Principal Researcher: Trevor Ray
Other Researcher(s): none
I would like to invite you to take part in this investigation into your attitudes towards PBL

1. Procedures

Participation in this project will involve

- One online questionnaire (15 minutes) and a phone interview (40 minutes).
- The research will be monitored by the researcher.
- The benefit to doing this investigation is being involved in academic research.
- There are no risks when participating in this research.

2. Voluntary Participation

Participation is entirely voluntary. If you do not wish to take part, you are not obliged to. If you decide to take part and later change your mind, you are free to withdraw from the project at any stage.
Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with the University of Southern Queensland and the Higher Colleges of Technology (Al Ain).
Please notify the researcher if you decide to withdraw from this project.

Should you have any queries regarding the progress or conduct of this research, you can contact the principal researcher:

Trevor Ray
Higher Colleges of Technology
PO BOX 17155, Al Ain
Phone: 050 109 1730
After hours: 050 109 1730

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant, please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

Ethics and Research Integrity Officer
Office of Research and Higher Degrees
University of Southern Queensland
West Street, Toowoomba 4350
Ph: +61 7 4631 2690 Email: ethics@usq.edu.au

HREC Approval Number: H11REA086
TO: The participants of this research
Full Project Title: Attitudes of Emirati students and expatriate teachers to Project-Based Learning: A case study
Principal Researcher: Trevor Ray
Student Researcher: none
Associate Researcher(s): none

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.

- I understand the purpose of the research project and my involvement in it.

- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.

- I confirm that I am over 18 years of age.

- I understand that while information gained during the data gathering period may be published, I will not be identified and my personal results will remain confidential.

- I understand that phone interview cassette tape will be retained, stored in a secure safe in a secure room. Only the researcher has access to this room and access is limited by secure lock.

- I understand that I could be audio taped and videotaped during the investigation

Name of participant…….....

Signed……. Date…….

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant, please feel free to contact the University of Southern Queensland Ethics Officer on the following details.
HREC Approval Number: H11REA086
Full Project Title: Attitudes of Emirati students and expatriate teachers to Project-Based Learning: A case study
Principal Researcher: Trevor Ray
Other Researcher(s): none
I would like to invite you to take part in this investigation into your attitudes towards PBL

3. Procedures

Participation in this project will involve

- Two questionnaires (15 minutes each), and two focus group interviews (40 minutes each) at the start and end of a project.
- The research will be monitored by the researcher.
- The benefit to doing this investigation is being involved in academic research.
- There are no risks when participating in this research.

4. Voluntary Participation

Participation is entirely voluntary. If you do not wish to take part, you are not obliged to. If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. Any information obtained during the group forum cannot be destroyed.
Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with the University of Southern Queensland and the Higher Colleges of Technology (Al Ain).
Please notify the researcher if you decide to withdraw from this project.
Should you have any queries regarding the progress or conduct of this research, you can contact the principal researcher:

Trevor Ray
Higher Colleges of Technology
PO BOX 17155, Al Ain
Phone: 050 109 1730

HREC Approval Number: H11REA086
TO: The participants of this research
Full Project Title: Attitudes of Emirati students and expatriate teachers to Project-Based Learning: A case study
Principal Researcher: Trevor Ray Student Researcher: none Associate Researcher(s): none

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.

- I understand the purpose of the research project and my involvement in it.

- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.

- I confirm that I am over 18 years of age.

- I understand that while information gained during the data gathering period may be published, I will not be identified and my personal results will remain confidential.

- I understand that the interview cassette tape will be retained, stored in a secure safe in a secure room. Only the researcher has access to this room and access is limited by secure lock.

- I understand that I could be audio taped and videotaped during the investigation

Name of participant…….....

Signed……. Date…….

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant, please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

Ethics and Research Integrity Officer
Office of Research and Higher Degrees
University of Southern Queensland West Street, Toowoomba 4350
Ph: +61 7 4631 2690
Email: ethics@usq.edu.au

Appendix F: Interview questions for teachers.

1. How effective do you think projects are for your students?
2. What difficulties do your students have with projects? How do they overcome these problems?
3. Do your students find projects fun and enjoyable?
4. Do you find your students are more engaged and motivated with their studies during a project?
5. Do you find your students find projects difficult due to the independent learning study methods used in the approach?
6. Do your students learn better from rote learning or from projects?
7. What is the behaviour of your students during a project i.e. are they focused and engaged or asleep or talking off tropic?
8. Do you find projects helping your students improve their knowledge?
9. Do projects improve your student's communication, and time management skills?
10. Do you see students succeed or fail because of the many problems found during a project? What are the greatest problems you students have with projects?
11. When do you see students succeed with projects?
12. Do your students struggle with the freedom and flexibility during a project?
13. Do you feel students find projects a satisfying method of learning?
14. Are projects frustrating for you as the teacher

Appendix G: Interview questions for students.

Student one on one semi-structured interview questions

1. Do you feel projects are an effective tool in helping you learn new information?
2. What difficulties do you have with projects? How do you overcome these problems?
3. Do you find projects fun and enjoyable?
4. Do you find you are more engaged and motivated with your studies during a project?
5. Do you find projects difficult due to the independent learning studying methods used in the approach?
6. Do you learn better from rote learning or projects within your normal class?
7. What is your behavior like during a project i.e. are you focused and engaged or are you asleep or talking off-topic?
8. Do you find projects help you improve your knowledge?
9. Do projects improve your communication, and time management skills?
10. Do you feel you succeed or fail because of the many problems found during a project? What are the greatest problems you have with projects?
11. When do you succeed with projects?
12. Do you struggle with the freedom and flexibility during a project?
13. Do you find projects a satisfying method of learning?

Appendix H: Student questionnaire

Subject: Business/ IT Male/Female Campus

	Strong Agree	Agree	No Opinion	Disagree	Strongly Disagree
Statement 1; Projects help me apply my knowledge.					
Statement 2: Projects are more interesting than traditional classrooms.					
Statement 3: Projects improve my communication and time management skills.					
Statement 4: Projects increase my motivation.					
Statement 5: Projects are more satisfying than studying from a textbook					
Statement 6: Projects are frustrating.					
Statement 7: I find during a project I struggle with many problems.					
Statement 8: I participate better in projects than working on my own.					
Statement 9: I like the freedom and flexibility of projects.					
Statement 10: I believe PBL gives more factual knowledge of learning than in a normal classroom.					
Statement 11: Projects help me understand the subject more					
Statement 12: I improve in my reflecting during a project.					
Statement 13: Teamwork and interpersonal skills during a project are better than a traditional class.					
Statement 14: I desire more projects to be organised in my class work.					
Statement 15: I do not learn a lot from projects.					
Statement 16: I feel projects are a satisfying way to learn					
Statement 17: Projects are difficult due to the independent aspect of PBL.					
Statement 18: I respond negatively when I find out I am doing a project.					
Statement 19; I gain a lot from projects.					
Statement 20: I do not gain a lot from projects.					
Statement 21: I find projects difficult					
Statement 22: I find projects motivating.					
Statement 23: I do not find projects a satisfying method of learning.					
Statement 24: When I find out I am going to do a project; I do not know where to start.					
Statement 25: Projects are time consuming.					

Appendix I: Teacher questionnaire

I teach: Business/ IT	Male/Female Campus				
	Strong Agree	Agree	No Opinion	Disagree	Strongly Disagree
Statement 1; Projects help my students apply my knowledge.					
Statement 2: Projects are more interesting than traditional classrooms for my students.					
Statement 3: Projects improve my student's communication and time management skills.					
Statement 4: Projects increase my student's motivation.					
Statement 5: Projects are more satisfying for my students than studying from a textbook					
Statement 6: Projects are frustrating for my students.					
Statement 7: My students find during a project they struggle with many problems.					
Statement 8: My students participate better in group projects than on their own.					
Statement 9: My students like the freedom and flexibility of projects.					
Statement 10: I believe PBL gives my students more factual knowledge of learning than in a normal classroom.					
Statement 11: Projects help my students understand the subject more					
Statement 12: My students improve in their reflecting during a project.					
Statement 13: I see my students improve in their teamwork and interpersonal skills during a project than they would during a traditional class.					
Statement 14: My students desire more projects to be organised in their class work.					
Statement 15: My students do not learn a lot from projects.					
Statement 16: My students feel projects are a satisfying way to learn					
Statement 17: My students find projects difficult due to the independent aspect of PBL.					
Statement 18: My students respond negatively when they find out they are going to do a project.					
Statement 19; I gain a lot from projects.					
Statement 20: My students do not gain a lot from projects.					
Statement 21: My students find projects difficult					
Statement 22: My students find projects motivating.					
Statement 23: My students do not find projects a satisfying method of learning.					
Statement 24: When my students find out they are going to do a project; they do not know where to start.					
Statement 25: My students find projects time consuming.					

Appendix J: Consent letter for the Higher Colleges of Technology

Tim Smith
Higher Colleges of Technology
PO Box 17155
Al Ain

Trevor Ray
Higher Colleges of Technology
PO BX 17155
Al Ain

January 3rd 2011

Subject: Introducing Problem Based Learning and requesting permission for student participation in a research project at Al Ain Men's College.

Mr Smith,

This letter is to introduce Problem Based Learning (PBL) and request permission for undertaking research at the Al Ain Men's College.

Problem Based Learning is both a teaching and learning approach that relies on students using a project which provides opportunities for learning. Two features of PBL are that any given project can reflect real-world complexities and students take ownership of their own learning.

This inquiry fits into the HCT curriculum since PBL is part of the institutions mission statements, for example diploma graduates will have:
• an ability to evaluate the appropriateness of different approaches to solving problems related to their area(s) of study and/or work; or
• an ability to communicate the results of their study/work accurately and reliably, and with structured and coherent arguments.

The purpose of this research is to investigate the perceptions of Emirati students and their teachers on Problem Based Learning. The project involves two questionnaires (one student and one teacher questionnaire), class observations, and volunteer interviews with the researcher. Participation is voluntarily and may withdraw at any time.
Some of the advantages of PBL for the students include:

- Authentic and contextualised language use
- increased motivation
- increased ownership in learning
- increased self-confidence as a learner (Beckett, 2002)

Following earlier discussions with you regarding PBL, I request permission to pursue a study that involves participation by students at Al Ain Men College. The reason permission is sought is ensure that the research is done ethically and that the rights of the students are protected.

The purpose of this investigation is to determine what the beliefs and expectations of Problem Based Learning are from Emirati students and CBL expatriate teachers.
The investigation will need use 3 classes from both HCT campuses to undertake the questionnaire. Volunteer teachers will respond to the online questionnaire from across from both campuses of Higher Colleges of Al Ain. Six male students will be interviewed one-to-one, once per week.

Six female students will be interviewed as a group forum twice, once at the first week and once at the final week of their project. Three volunteer teachers will be interviewed by phone as a 30 minute interview. One class of 20 students will be observed once a week with the same teacher over a period of six weeks.

I look forward to meeting with you to discuss this research on January 12th 2011.

Yours sincerely

Trevor Ray
USQ Doctor of Education Candidate researcher

Appendix K: Letter of permission from HCT director

April 14th 2011

Trevor Ray
Higher Colleges of Technology
PO OBX 17155
Al Ain

Dear Trevor,

I have reviewed your request regarding your study and am pleased to support your research project entitled *"Attitudes of Emirate students and expatriate teachers to Project-Based Learning: A case study"*.

Your request to use Al Ain Men's College and Al Ain Woman's College as a research or recruitment site is granted.

The research will include questionnaires, interviews and class observations occurring with employees and students. This authorization covers the time period of September 2011 to February 2012. We look forward to working with you.

Sincerely,

Tim Smith
Director
Al Ain Colleges

ص.ب: ١٧١٥٥ العين، الإمارات العربية المتحدة، هاتف: ٠٨٨٨ ٧٨٢-٠٣، فاكس: ٠٠٩٩ ٧٨٢-٠٣
P.O.Box: 17155 Al Ain, United Arab Emirates, Tel: 03-782 0888, Fax: 03-782 0099
Web: www.hct.ac.ae

Appendix L: Past research methodologies investigating student attitudes towards PBL

	Subject/ Location	Treatment of PBL	Treatment and Control group	Pre and Post Questionnaires	One off Questionnaires	Observations	Subject Examination	Interviews (Group or individual)	Self Reflection Journals
Bas (2010)	ESL	x	x	x	x		x		
Sheridan (2015)	Science						x	x	
Hamdan, Kwan, Khan, Ghafar, and Sihes (2014),	(1st year)			x			x		
Carvalho (2012)	Malaysia			x	x				
Wade (2010)	Mathematics								
Nahar, Salem, Nuzhat, Alakrash, and Dipro, (2014)	Medical Students				x				
Seluk (2010)		x	x	x					
Amin & Khoo, 2009	Malaysia				x				
Emerald 2013									
Ahlfeldta et al.	1831 completed				x				

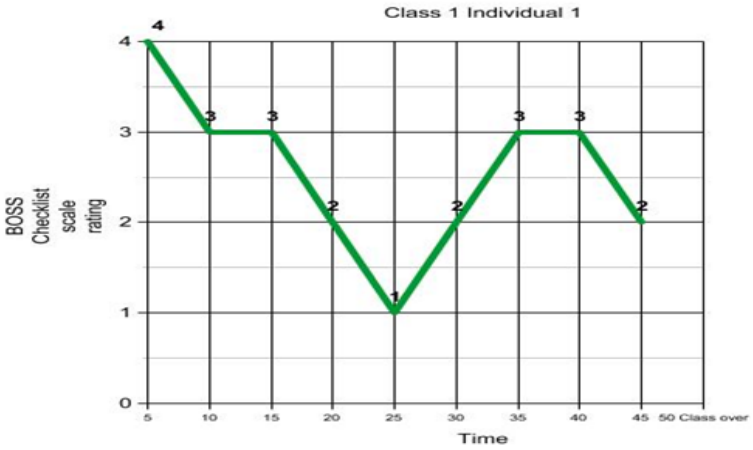
Appendix L: Past research methodologies investigating student attitudes towards PBL (cont'd)

(2005)	surveys from 56 USA colleges					
Maseka et al. (2013)	1st year Malaysian engineering students	x	x	x	x	
Huang and Wang (2012)	ESL Class	x	x	x		
Landeen, Jewiss, Vajoczki, and Vine's (2013)	Bachelor of Science programme			x		
Gleeson (2011)			x	x	x	
Mustafa, Alimoglu, Didar, Sarac, Alparslan, Ayse Karakas and Altintas (2014)	NZ Primary School		x			

Appendix M: Checklist record using Schlechty checklist rating for 5 class observations from 5 different classes.

Observations from Class 1, Individual 1, showing one individual's group engagement with their project during a 45-minute observation.

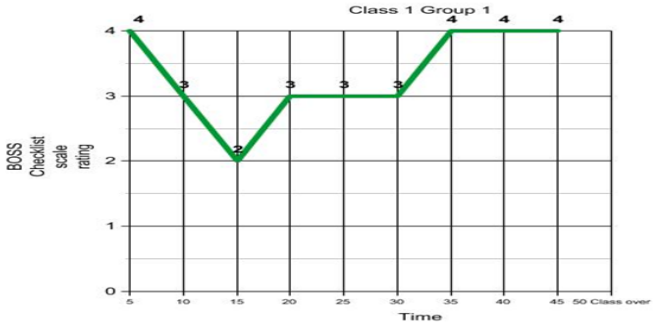
Class 1 Individual 1



Individual 1	Rating	Checklist	Activity
5	4	PE	Teacher is stating expectations of work to be done in class for project Has given reading material for project.
10	3	OTM	On phone
15	3	OTM	On phone
20	2	OTV	Talking to another student about issues unrelated to an assigned academic task
25	1	OTP	Looking out the classroom into hall through glass wall

30	2	OTV	Talking to peer but off task issues about something on phone. Showing phone to friend
35	3	OTM	On phone
40	3	OTM	On phone
45	2	OTV	Talking to classmate but off topic. Not on project. Getting ready to leave class

Observations from Class 1, Group 1, showing one individual's group engagement with their project during a 45-minute observation.

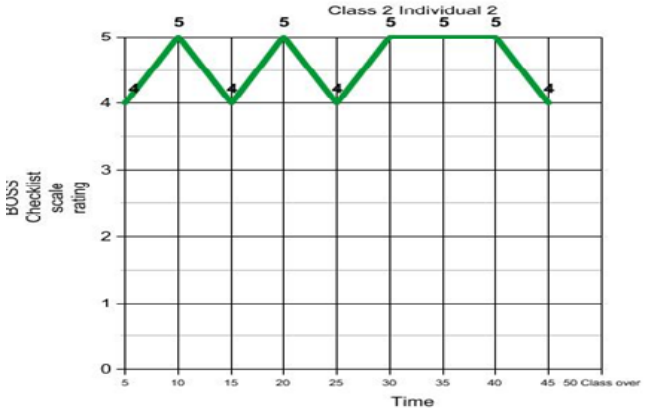


Class 1

Group 1	**Rating**	**Checklist**	**Activity**
5	4	PE	Listening to teacher's instruction
10	3	OTM	All members on phones, no talking

15	2	OTV	Joking together
20	3	OTM	Some reading or looking on Facebook on phones
25	3	OTM	All on phones, a range of chatting, Facebook
30	3	OTM	All on phones, a range of chatting, Facebook
35	4	PE	Teacher interrupting students asking them to get on task.
40	4	PE	Reading given readings by the teacher, assigned readings for project.
45	4	PE	Reading given readings by the teacher, assigned readings for project. Some students asking each other questions about vocabulary

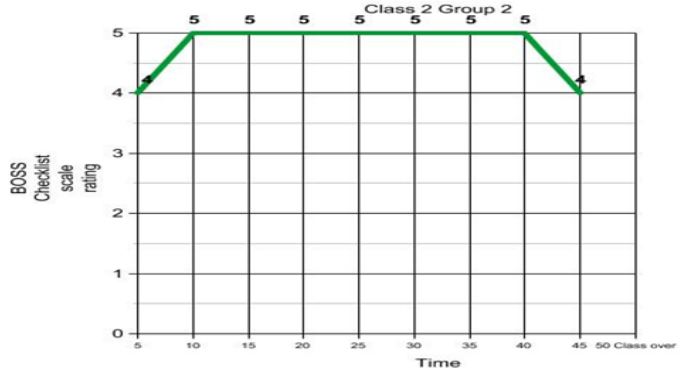
Observations from Class 2, Individual 2, showing one individual's group engagement with their project during a 45-minute observation.



5	4	PE	Listening to teacher

10	5	FAE	Talk to a peer about the about project
15	4	PE	Listening to teacher, asking a question
20	5	FAE	Researching on project
25	4	PE	Listening to a student
30	5	FAE	Member is talking with all group members about project others are listening
35	5	FAE	Writing up project on computer
40	5	FAE	Writing up project on computer
45	4	PE	Listening to group members talking
50			

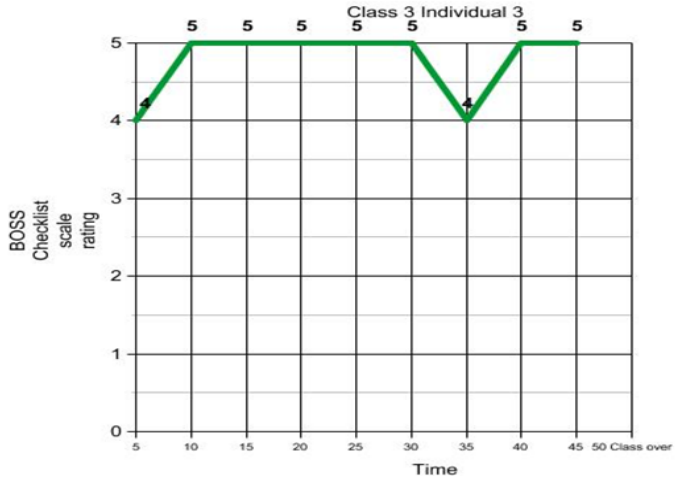
Observations from Class 2, Group 2, showing group engagement with their project during a 45-minute observation.



Class 2

Group 2	Rating	Checklist	Activity
5	4	PE	Listening to teacher’s instruction
10	5	FAE	Group members are talking about project
15	5	FAE	Group members are talking about project
20	5	FAE	members are writing on computers
25	5	FAE	members are writing on computers
30	5	FAE	Group members are talking about project
35	5	FAE	members are writing on computers
40	5	FAE	members are writing on computers
45	4	PE	Listening to teacher before the class winding up
50			

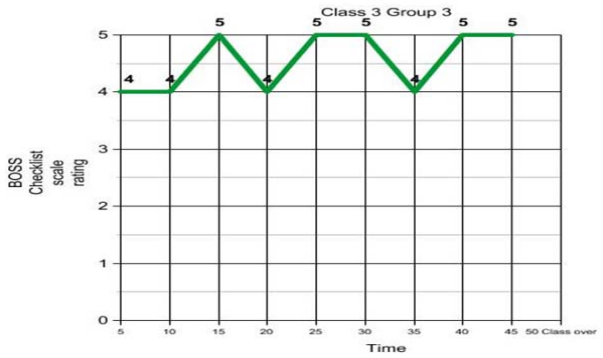
Observations from Class 3, Individual 3, showing one individual's engagement with their project during a 45-minute observation.



Individual	Rating	Checklist	Activity
5	4	PE	Listening to a group member talking about what they have done for project so far
10	5	FAE	Working on project
15	5	FAE	Looking up data on computer
20	5	FAE	Researching reading spreadsheet
25	5	FAE	Writing up computer
30	5	FAE	Talking to a group member are talking about project

35	4	PE	Reading silently, reading project material
40	5	PE	Reading silently on project material
45	5	FAE	Group members are talking about project
50			

Observations from Class 3, Group 3, showing one individual's group engagement with their project during a 45-minute observation.

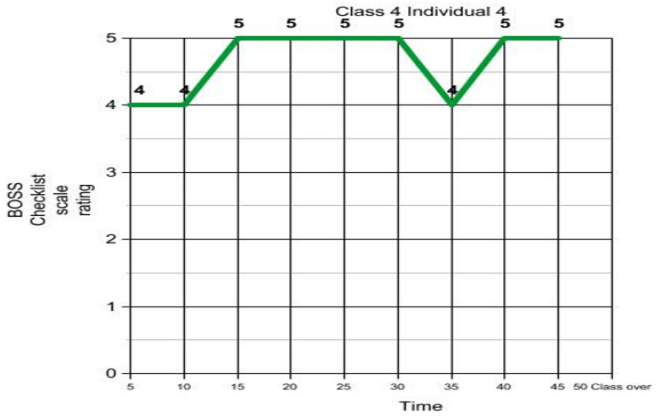


Class 3

Group 3	**Rating**	**Checklist**	**Activity**
5	4	PE	Listening to teacher's instructions
10	4	PE	Group members are listening to group leader

15	5	FAE	Preparing project material discussing project issues
20	4	PE	Teacher giving advice
25	5	FAE	Working on project, sharing resources
30	5	FAE	Working on project, sharing and discussing over notes
35	4	PE	Teacher is at the group giving advice
40	5	FAE	Writing on computers
45	5	FAE	Writing up on computers
50			

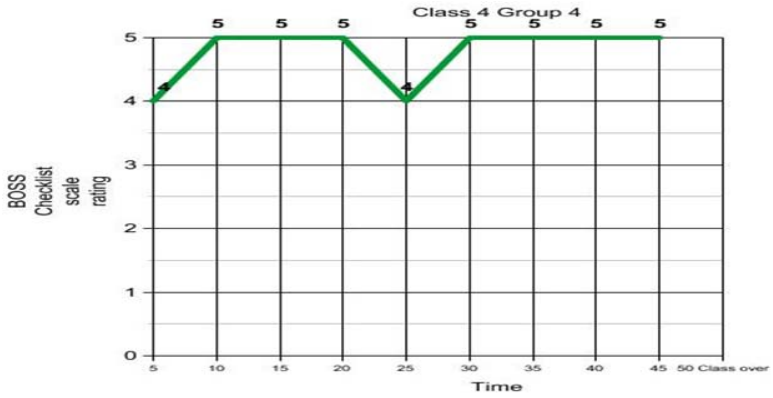
Observations from Class 4, Individual 4, showing one individual's engagement with their project during a 45-minute observation.



Group 4

Individual	Rating	Checklist	Activity
5	4	PE	Listening to the Teacher who giving instructions
10	4	PE	Listening to another student asking teacher questions
15	5	FAE	Discussing (unknown)
20	5	FAE	Working on computers
25	5	FAE	Working on computers
30	5	FAE	Working on computers
35	4	PE	Teacher is getting class attention, student listening to teacher's explanation
40	5	FAE	Student asking question to teacher
45	5	FAE	Working on assignment

Observations from Class 4, Group 4, showing group engagement with their project during a 45-minute observation

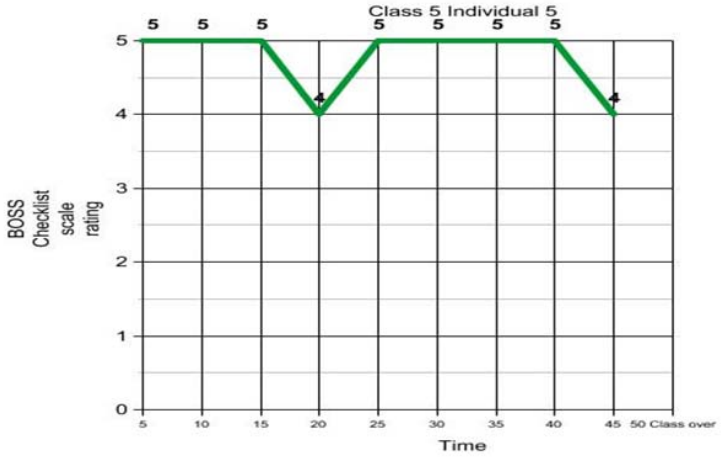


Class 4

Group 4	Rating	Checklist	Activity
5	4	PE	Listening to teacher instructions
10	5	FAE	Group is working on analyzing notes for project interview
15	5	FAE	Discussing notes and sharing ideas

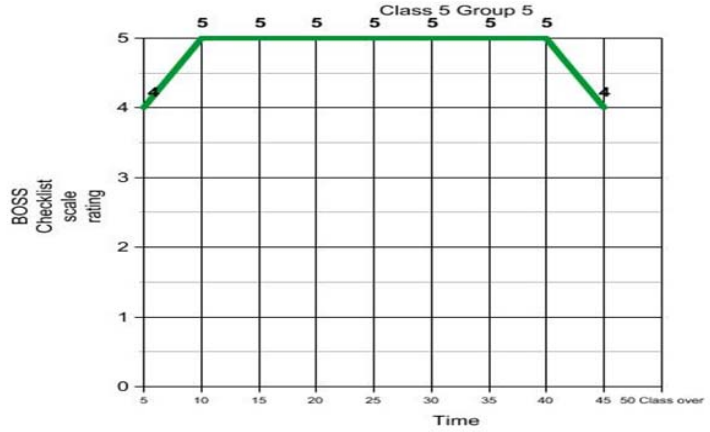
20	5	FAE	Issuing notes and sharing ideas
25	4	PE	Teacher is guiding students
30	5	FAE	Working on computer
35	5	FAE	Working on computer
40	5	FAE	Discussing with group member
45	5	FAE	Discussing with group member
50			

Observations from Class 5, Individual 5, showing one individual's engagement with their project during a 45-minute observation.



Individual	Rating	Checklist	Activity
5	5	FAE	Talking with group members about project while teacher is talking
10	5	FAE	Talking with group members about project
15	5	FAE	Preparing PPT
20	4	PE	Listening to a group member
25	5	PE	Someone has come to visit the class and give some information
30	5	FAE	Preparing PPT
35	5	FAE	Preparing PPT
40	5	FAE	Preparing PPT
45	4	PE	Closing down the computer discussing with a group peer about project
50			

Observations from Class 5, Group 5, showing group engagement with their project during a 45-r



Class 5

Group 5	Rating	Checklist	Activity
5	4	PE	Listening to teacher
10	5	FAE	Group discussing project
15	5	FAE	writing something on paper
20	5	FAE	Still writing notes on paper and reflecting on project idea
25	5	FAE	Working on project- some are researching and reading spreadsheets

30	5	PE	Reading spreadsheets and looking at notes
35	5	FAE	Discussing spreadsheets
40	5	FAE	Discussing spreadsheets
45	4	PE	Teacher giving feedback to the group. up discussion
50			

Summary of rating data from the 5 individuals and 5 classes.

Time	Ind.1	Class 1	Ind.2	Class 2	Ind.3	Class 3	Ind.4	Class 4	Ind.5	Class 5
5	4	4	4	4	4	4	4	4	5	4
10	3	3	5	5	5	4	4	5	5	5
15	3	2	4	5	5	5	5	5	5	5
20	2	3	5	5	5	4	5	5	4	5
25	1	3	4	5	5	5	5	4	5	5
30	2	3	5	5	5	5	5	5	5	5
35	3	4	5	5	4	4	4	5	5	5
40	3	4	5	5	5	5	5	5	5	5
45	2	4	4	4	5	5	5	5	4	4

Key: Ind.=Individual.

Appendix N: Description of PBL project for the Business and IT students

As part of their internal coursework assessment, the students were given a six to eight-week period to investigate a local business or IT support team. By undertaking an interview with the business or team, the students were expected to gain an understanding of the range of problems that were presented in that environment. The student groups were then to investigate a range of suitable solutions for that problem and show possible connections to any relevant theory from their textbook.

Appendix O: Crosstabulation of student's years of studying English vs each questionnaire statement.

Table S
Years of learning English

		Agree	Disagree
Statement 1	<5year	47	2
	>5 year	85	4
Statement 2	<5year	37	8
	>5 year	40	10
Statement 3	<5year	44	2
	>5 year	84	3
Statement 4	<5year	45	2
	>5 year	71	3
Statement 5	<5year	40	3
	>5 year	73	9
Statement 6	<5year	27	14
	>5 year	48	16
Statement 7	<5year	32	9
	>5 year	56	12
Statement 8	<5year	46	2
	>5 year	84	0
Statement 9	<5year	39	6
	>5 year	75	1
Statement 10	<5year	39	4
	>5 year	75	5
Statement 11	<5year	35	2
	>5 year	59	4
Statement 12	<5year	42	2
	>5 year	70	3
Statement 13	<5year	63	1
	>5 year	67	6
Statement1 14	<5year	34	3
	>5 year	71	3
Statement 15	<5year	10	38
	>5 year	17	58

Statement 16	<5year	45	2
	>5 year	70	5
Statement 17	<5year	22	14
	>5 year	45	21
Statement 18	<5year	21	17
	>5 year	45	20
Statement 19	<5year	42	4
	>5 year	74	8
Statement 20	<5year	12	33
	>5 year	21	55
Statement 21	<5year	26	14
	>5 year	45	27
Statement 22	<5year	41	4
	>5 year	66	12
Statement 23	<5year	13	30
	>5 year	25	41
Statement 24	<5year	25	17
	>5 year	53	24
Statement 25	<5year	35	6
	>5 year	63	17

Appendix P. Student interview statements based on identified themes

P.1. Students find projects interesting

Student 16: Being with my friends and talking with my friends in the group is one think alike. (student interview, May 22, 2012).

Student 16: I can't say I hate projects as I find them interesting and challenging. (student interview, May 23, 2012).

Student 18: I think I have found them to the fun and interesting. (student interview, May 23, 2012).

Student 24: Investigating stuff is fun. If I can find ways to solve this problem for this business, then I think I am making some good choices. (student interview, May 23, 2012).

Student 25: Projects are fun, I like doing projects, and I think I will do it again. (student interview, May 23, 2012).

Student 26: I like the idea that we have chosen for our project and investigate something that interests us and it relates to our future life. I think this is making coming to class more interesting and it will give us many advantages. (Student 26, Interview, May 23, 2012).

Student 40: What I like about projects is that I get to do some research. I like investigating for a suitable solution for the business we are working with…Projects are different from how we learnt in secondary school, but doing projects allows me to think more, learn more, and explore more. (student interview, May 29, 2012).

Student 18: I think they are better than doing an essay and more interesting and relevant for my life. (student interview, May 23, 2012).

P.2 Improving communication skills or any skills

Student 6: I think I am learning to talk more with my peers about what we are learning. (student interview, May 21, 2012).

Student 10: I think it is helping me with talking to others in my group. (student interview, May 22, 2012).

Student 9: My reading has improved with doing projects over the last year or two. (student interview, May 22, 2012).

Student 24: Projects can give us some benefits. It is good for us to read some information and also makes us think. This is better than boring talks from the teacher. (student interview, May 24, 2012).

Student 40: I think I am improving in my communication and problem solving. (student interview, May 29, 2012).

P.3 Students felt they were learning more because of the PBL projects.

Student 10: Projects help me what I am learning (student interview, May 22, 2012).

Student: 17: I think I am learning lot more than just sitting in class. (student interview, May 23, 2012).

Student 2: I like the idea, I get to learn a lot but we are busier now than before. We could relax when the teacher was teaching us. (student interview, May 21, 2012).

Student 28: I think it makes me understand what I am learning…. I am starting to see what I am learning. I think what I am doing, such as learning how to make spreadsheets will help for any future job. (student interview, May 27, 2012).

Student 25: I get to learn more knowledge and more information. (student interview, May 24, 2012).

Student 30: I like this style of learning. I like doing things and I am not having just to sit there. I am working with others and not having to do it on my own. (student interview, May 28, 2012).

P.4 Students appreciate group work

Student 8: I like the group work, I am learning from my peers. (student interview, May 21, 2012)**.**

Student 15: I feel I am learning a lot from (student name); she is helping me out with how to organize my presentation better. Student 15, (student interview, May 22, 2012).

Student 25: I think having to do things for myself is okay but it is easier doing things in the group as we all work hard to make sure we get a good grade… It (PBL) helps with collaborating with others and not doing it on your own. (student interview, May 23, 2012).

Student 27: Doing group discussions in class is fun as we get to catch up with each other after a long time away from each other. I mean, we use facebook to chat but face to face is better. (student interview, May 23, 2012)May 23

Student 40: I have learnt a lot from my class mates in my group. I see that we all don't have the same view point. I thought we would all have the same idea and agree on the same idea but actually we don't. It meant we had to learn to agree on what we wanted to write for our project. (student interview, May 29, 2012).

Student 38: I feel I have made some really good friends in my group. I think that this makes group work more fun, as I get to be work with others and we share something to do together. (student interview, May 29, 2012).

Student 12: I have learned that groups can help, especially when you're in difficulties. (student interview, May 22, 2012).

P.5 Students feel PBL is useful because students see connections

Student 12: I like doing projects because I can apply what I am learning in the course to what I am doing in the project. I think what I am doing in the project will be useful to future work. (student interview, May 22, 2012).

Student 13: I am using what I am doing in the project in my job. I am learning about how to use spreadsheets more and I have to work more with these at work. (student interview, May 22, 2012).

Student 23 (late): this project is useful for me because I am learning about how to do spreadsheets better. So, it is very important for me to learn about it. This will help me in the future. (student interview, May 23, 2012).

Student 18: Also when I do this project, it makes me think I am doing the real thing as if I was at the job. (student interview, May 23, 2012).

Student 39: I feel I am gaining some confidence in the course. I think I am learning something. (student interview, May 29, 2012).

P.6 Students desire more support or resources from their teachers

Student 3: I need more stuff like handouts or answers from the teacher, if I could get everything I need from him, and then I can write it up quickly. (student interview, May 21, 2012)**.**

Student 4: We need more resources, the teacher should provide more photocopies (of the material we are doing for the project) for us to use then we know what to look for. (student interview, May 21, 2012)**.**

Student 21: I don't like going out to find the answers, I think the teacher should give us all the resources; we read it and make a statement in the project. When doing a project, I always have a lot of uncertainties when searching for new information and I do not know where to go if I cannot find it on the internet. I find projects hard. I never undertook any form of project work or group work in secondary school. It was only when I started here at university. (student interview, May 23, 2012).

Student 19: ….I will do them again as long as they provide more resources. (student interview, May 23, 2012).

Student 25… it is hard to find new information; I do not know where to locate it. (student interview, May 23, 2012).

Student 32: The resources are limited; I am not sure where to find resources for this project. (student interview, May 28, 2012).

Male Student 30: My problem is that with a new subject, it is hard to find new information; I do not know where to locate it. (student interview, May 28, 2012).

Male Student 35: I feel there is not enough support- it is hard to find enough resources. Where can I find the resources? I cannot find it at home at college. If I find the information, I do not have enough time. (student interview, May 28, 2012).

Male Student 33: I think we (the students) feel if they (the teachers) provide all the information, then we can get on with project. I do not like having to research new information; I don't feel motivated if I have to do this (research new information). (student interview, May 28, 2012).

Male Student 30: We need more support by training us in how to do projects in our earlier years (of study). We don't have the basic skills or knowledge in what to do in projects. (student interview, May 28, 2012).

Male Student 32: I think the enjoyment of doing a project comes from what type of project is going to be done. We need help with where to get better information. (student interview, May 21, 2012).

Student 38: I think the teacher should provide more support for us. We can meet with them and they give us suggestions but they don't give us the answer we want. We want to know what we have written is exactly what he wants. If we write the wrong thing, we will get a failing grade. (student interview, May 28, 2012).

P.7 Students dislike group work

Student 2: I do not like the team groups, I mean, they are fun at times but when we argue over something, what is the point. I mean, I really find teamwork frustrating, it is hard to work together if there is no agreement between each other and the whole project can collapse. (student interview, May 21, 2012)**.**

Student 9: I don't like working in teams. I feel I could have done better with doing this on my own. It is hard to work together if you do not get on. (student interview, May 22, 2012).

Student 10: I agree, I think it is hard to work together if you disagree but you need to find a compromise. It is also difficult if someone is pushing their ideas on to everyone else and makes everyone accept their ideas and they don't accept anyone else ideas in the group. It is hard for everyone to work with such a person. (student interview, May 22, 2012).

Student 23: In another group, I did all the work and ended up having to do the work of another student and this is too tiring. (student interview, May 22, 2012).

Student 26 Also, in one of my groups, I did all the work and ended up having to do the work of another student and this is very tiring. (student interview, May 23, 2012).

Student 24: I don't like group work. Sometimes members of the group want to control everything. It is hard to handle when we conflict. I think our group has struggled and made some relationships not so strong but we want to get the project finished and get a good grade. Some of us have ended up doing all the work and right now I am helping another person to do her part. In another group, I did all the work and this is too tiring. (student interview, May 23, 2012).

Student 40: Doing projects can be both a positive and negative experience. I think that doing a group project means that we share the work load together and therefore it is easier to do than if I did it all on my own. The problem is that dividing the work amongst each other means some of it gets done and some others don't get their share done. (student interview, May 29, 2012).

Student 37: Doing projects can go both ways. I think I would prefer to do a project on my own. Doing projects in groups has its benefits but when people disagree or you end up doing work on someone else's part, that is not fair and makes doing projects no fun at all. (student interview, May 29, 2012).

Student 40: I feel I am doing all the work. I think that others in the group are not helping. This means I am doing more work than the others this is the most frustrating. I want a good grade and I want to pass this course well. (student interview, May 29, 2012).

P.7 Students desire more time

Student 11: We need more time to do our project. I feel we do not have enough time. I think the teacher should give us more time to do these projects. Projects take up too much work. (student interview, May 22, 2012).

Student 10: We need more time; I do not do the project at home. We can only do it in class. (student interview, May 22, 2012).

Student 24: Also, we need more time. I feel we will not finish before the deadline. This worries us a lot. (student interview, May 22, 2012).

Student 26: We need more time to do this. (student interview, May 24, 2012).

Student 29: This project has been time consuming. I have to organize the photos or write up a weekly record. I enjoyed it at the start but now at the end, I just want to hand it in. (student interview, May 227 2012).

Student 30: The course deadlines for the projects are annoying as we need more time to get work done or it would be better to get extensions to complete the project. We need more time to complete the work as we have other work to complete as well. (student interview, May 21, 2012).

Student 33: I am having a real hard time to do two projects; I have a hard time to manage my time. I have many other things to do for the family, for my job and then come to study at HCT. If

I was given a choice to study projects, I would choose a project over an exam. (student interview, May 21, 2012).

Student 40: I think teachers should give us more time. I think they have more free time and they should give us more time. I have found doing projects to be a new learning experience. (student interview, May 21, 2012).

Student 37: I think we need more time to do project work, even if we are in groups. So I feel we are not getting many benefits. This project seems it still takes more time. I thought doing a project in a group would make it quicker but it seems it still takes a long time. Everyone has a different opinion. (student interview, May 29, 2012).

P.8 Projects are frustrating and difficult

Student 1: I do not like the idea. It is too much work. I think there should only be one answer. I find it too difficult to answer and I keep giving up if the teacher does not show me what they want….. I have very little time at home and do what I can in class time but it is hard work. (student interview, May 21, 2012).

Student 31: The course deadlines for the projects are annoying as we need more time to get work done or it would be better to get extensions to complete the project. We need more time to complete the work as we have other work to complete as well. (student interview, May 28, 2012).

Student 40: For me I want to get the project done and hand it in as soon as possible. (student interview, May 29, 2012).

P.9 Cultural influences.

Student 12: No, we cannot meet outside the home at such places such as Starbucks or MacDonald's. We do not have the freedom as the guys have. We have to go straight home after school and I get taken home by either my Indian driver or a brother. (student interview, May 22, 2012).

Student: 19: It is hard to relate what we are doing because we have not had the experience. Since we are female, we can't do what our brothers can do. We don't have the freedom and therefore it is hard to relate to in what we are studying. I do not know about opening a bank account as that is taken control by my father. Our culture keeps us under a lot of control and therefore this prevents us from understanding basic real life experiences. (student interview, May 22, 2012).

Student 11: We will meet each other online or send each other a text. (student interview, May 22, 2012).

Student 15: We have to stay home when we are not coming to class and therefore to cope with this, we use social media sites like Facebook or use our Blackberries. (student interview, May

22, 2012).

Student 17: Blackberries are a favorite amongst us students. We do not use SMS as frequently as you may think but we use email or Facebook to keep in touch with each other. Or we will wait until we see each other face to face when coping with having to stay at home and only able to meet at school face to face. (student interview, May 22, 2012).

Male Student 35: I don't have time to finish at the project. My family responsibilities get in the way. (student interview, May 28, 2012).

P.10 Students lack of experience in PBL

Student 36: I don't like having to this project at the end of the term and before we graduate. I have had no idea in what I have been doing. Research this and research that but the workload is more. This is not cool, it makes life stressful. (student interview, May 28, 2012).

Student 21: I never undertook any form of project work or group work in secondary school. It was only when I started here at this course. (student interview, May 23, 2012).

P.11 Students feel their English is adequate for projects

Student 14: English is a language for us that we have been studying a long time. Doing a project in English is not difficult for us. (Other students nodding and agreeing) (student interview, May 22, 2012).

Male Student 34: My English is good. (student interview, May 28, 2012).

Male Student 32: For me, English is not a limiting factor to do my project. I can still complete it. (student interview, May 28, 2012).

Male Student 31: I feel that most of us have IELTS 5.5 and this is good enough to complete this project. (student interview, May 28, 2012).

Student 9: They are not an issue for us; we have spell check and grammar check in (windows) office to help us. (student interview, May 21, 2012).

Appendix R: Teacher interviews organised by themes

R.1 Students find projects interesting

Teacher 2: I can see that my students are engaged and learning a lot from doing a project. The results are not so great but they are engaged and busy learning. It does take a lot of time to get something back but they are engaged. The lower Diploma students do not show as much effort as the bachelor students. They do less leading in the class. The work quality is not so good. (teacher interview, May 22, 2012).

Teacher 3: I think Emirati students like doing projects. They are a collective people and they like working together. Their tribalness takes over their learning. (teacher interview, May 23, 2012).

Teacher 4: I like seeing students doing projects. It is great to see the students happy; they are excited when they are working together. They listen to each other's discussions. They are interested in solving issues and if they are serious about their project, they will really concentrate. Often if they are distracted, they will be talking about their handbags, cellphones, and perfume and family issues. (teacher interview, May 24, 2012).

Teacher 5: Yes, I can say that they do. They usually need though longer deadlines but it seems to work for them. (teacher interview, May 27, 2012).

Teacher 7: The most immediate benefit is that it increases student engagement. I know that in my classes is that my students become less engaged in learning the longer they spend in the classroom. I want to use PBL to reverse the disengagement and want to give my students the opportunity to dig into real-world issues and challenges that matter to them and their communities. (teacher interview, May 29, 2012)

Teacher 5: Students are engaged a lot in their projects as they meet during class time….. I find that my female students are engaged with their projects but the quality that I get back is not what I find as when I have taught in the States. (teacher interview, May 27, 2012).

Teacher 6: They can focus on their own situation and gain a new sense of confidence and they can see the effects of their learning in their work environment, in their own lives, and they can see their lives change. (teacher interview, May 28, 2012).

Teacher 7: I feel the benefits for Emirati students doing PBL are compelling: I feel they can gain deeper learning, they are more engaged, and possibly give something back to the local business community. (teacher interview, May 29, 2012)

R.2. Teachers feel projects improve student's communication skills or any skills

Teacher 1: They are learning research skills and communication skills when working in a group. They also learn leadership and group dynamics. It is essential they learn teamwork skills. (teacher interview, May 21, 2012).

Teacher 1: when they come into the college they do not have the skills to do group work or a project. The students need to learn these skills when they arrive in the college and they need to have a balanced approach to learning (teacher interview, May 21, 2012).

Teacher 2: Teachers like projects as they can provide real life skills which future employers are looking for, such as presentation skills, making surveys, surveys for blackberries, etc.(teacher interview, May 22, 2012).

Teacher 3: Students get a lot out of projects such as team work skills, research skills, critical thinking, etc. They get to learn how to write a report but they lack ideas on how to write a report. (teacher interview, May 23, 2012)

Teacher 5: They get to learn skills like presentation skills, research skills, communication skills, etc. They get better as they practice and produce more. The learning curve is hard at first for them but once they understand what is involved, they get on with it. (teacher interview, May 27, 2012).

R.4. Teachers feel students are learning.

Teacher 1: Students feel they learning more because of the PBL projects. (teacher interview, May 21, 2012).

Teacher 1: One benefit is that they acquire new knowledge. (teacher interview, May 21, 2012). (teacher interview, May 23, 2012)

Teacher 7: I use the PBL project to enhance the student's opportunities to learn. They can learn from the textbook but the project assessment allows students to learn while doing something practical. (teacher interview, May 29, 2012)

R.5. Teachers feel students appreciate group work

Teacher 1: They can learn from each other. (teacher interview, May 21, 2012).

Teacher 3: They like to minimize the workload and effort by either buying, or sharing it out amongst themselves. But this fails as they don't work to develop the strengths each one (student) has such as one researching, proofing, etc. They seem to learn more through projects as they do not like to read a lot. They do not like individual independent work. (teacher interview, May 23, 2012)

Teacher 6: I have student groups work well and share their data together. They often share together their interpretations and contribute ideas. They push for details and get a lot of support to each other. This is a good start for collaboration. Collaboration is meant to help share ideas and the students have been away a lot from each other during the week and they have a lot to say. And they are glad to see each other. (teacher interview, May 28, 2012).

R.6 Teachers feel students feel PBL is useful because students see connections

Teacher 2: Having PBL helps the students understand what is being taught and the biggest problem in trying to apply theory to real life. I am using blended teaching, I lecture on the coursebook, while they are doing their project in the other scheduled classes. (teacher interview, May 22, 2012).

Teacher 4: We use it as it to tie the IT problems the students have to research and have them investigate suitable solutions. Having students investigating and real world IT problems go hand in hand. Since the students are going out to the local community, such as local government IT department, they get to interview an IT team and from understanding this authentic situation or problem. The students have to investigate what are some possible solutions. (teacher interview, May 24, 2012).

Teacher 5: Teacher 5: Of course, they get to apply what they learn from projects…. (teacher interview, May 27, 2012).

R.7 Teachers understand students desire more support or resources.

Teacher 1: The level of support the students are different for each level. At the diploma level, the students have low English, and this impacts them the most. They have very poor research skills at this level and have no idea how to present information. They need a lot of support. (teacher interview, May 21, 2012).

Teacher 4: I find the students take their frustrations out on me when I guide them to the resources online or at the library. They continually ask for help and support. I give them the resources but they are unwilling to read the material. They want me to explain the material but I ask them to do it themselves. (teacher interview, May 24, 2012).

Teacher 5: They do not use the resources we give them, such as resources I give them in the library. They plagarise information they find on the internet. I can take them to the library and show them what material which is needed for the project but they will not read it and later on

they will complain that I did not give them enough material or support to complete the project. (teacher interview, May 27, 2012).

Teacher 6: The students do not feel confident at times on if they are doing the right thing, so they will constantly ask the teacher. As a teacher, I encourage them to take on their own responsibility for their own project. The teacher doesn't have to remind them about the project procedures. The problem is that the students are not making the time to read the material. They are naturally not gleaned to be readers but it would be nice if they tried. They struggle to comprehend material due to their level of English. (teacher interview, May 28, 2012).

Teacher 7: I have to make students understand the connection between the learning goals; predict and have answers to help students manage the learning process and have responses ready when I have to make adjustments; and have assessment rubrics ready. It's a tall order but rewarding. (teacher interview, May 29, 2012)

R.8. Teachers understand why students dislike group work,

Teacher 1: If group work is assigned and it is done outside the class, it is hard to see who is doing all the work and who is not doing work. You do not know who is contributing. It is easier to monitor this in the classroom. Students do work in the classroom but some of the projects are done predominantly at home which may last for a few weeks. (teacher interview, May 21, 2012).

Teacher 3: Students prefer pair work, than working individually. The issue for the group or team work is that many of the good students or hard working students carry the load for the weaker students. The good students get left to complete all the work for the whole period of time…..Students misunderstand what it means to be a team player. The teacher will explain what it means to be a team player and will demonstrate this but still the students do not understand. Explaining how to be a team player is not enough, they still do not understand. Good students will not force weaker students to do any work but instead help them to pass as well even though the teacher says do not help these students. Another factor of the students is that they are only

working togeather is to just get the work done and they do not take in the information they should be learning. (teacher interview, May 23, 2012)

Teacher 3: Another area is that they lack good communication skills between team members. Communication breaks down and they are too lazy to even communicate through sms, or they do not check their emails. No one arranges any meetings. So quite often the group dynamics fall apart and this means only one or two (students) will complete the project on their own and end up carrying the rest of the lazier students. (teacher interview, May 23, 2012)

Teacher 3: They do not share responsibilities very well, like identify their strengths and use these to help complete the project. They do not subdivide the project is proof reading, presentation etc. between each other. (teacher interview, May 23, 2012).

Teacher 5: One of the problems for doing projects is that there is a disparity between the efforts of some students. Some students put in the time and effort and others not so much. Some get help from ex-students but that does not happen much. A lot do the work on their own or within their groups. Because each project is unique, there is no opportunity for cheating and reliance on ex-students. I will ask students to report on each other's contribution to the project and if they feel one is not doing the effort; I can then mark that student down. You can soon recognize which (work) was not done by student. (teacher interview, May 27, 2012).

R.9. Teachers understand student's desire more time

Teacher 1: Time management is another skill they struggle with as it is a struggle for most students to get the projects in on time. The college has a penalty for late work. What I have observed is that the woman students will get the work done on time but for the men students this is the opposite, they are late and leave it till the last minute. (teacher interview, May 21, 2012).

Teacher 2: Another difficulty is putting projects in on time for the deadline. They are often late. (teacher interview, May 22, 2012).

Teacher 2: Students are more engaged when the project is due the day before. Students will procrastinate until the day due. I see this due to their outlook on life, they have their own

personal comforts and they feel doing a project for a day is enough work. The quality of the project is then justifiably not very good. (teacher interview, May 22, 2012).

Teacher 2: Students struggle with time management. They have to manage their time with their jobs, family responsibilities, and schoolwork. For the mature students, they can manage their time better but the younger students find it harder to manage their time. There is a lot of demand on their time because of the collective family culture found here in the Arab Peninsula. …. I often get students asking me for extensions at the last minute and this shows that they have been procrastinating until the very last minute and they demand an extension or they feel they have the right to have an extension. This is how things are in this culture. Also, I notice that many students will hand in work and it is half finished and they expect to get a full grade for it. And they will complain or report you if they do not get what they want. (teacher interview, May 22, 2012).

Teacher 3: The greatest challenge for students is time management. Students keep leaving things till the last minute to complete their project. It always happens every semester. They have no idea how to manage their time. They also need more research skills experience as they are really undeveloped in this area. (teacher interview, May 23, 2012).

Teacher 6: Some of the frustrations for the teacher are that students leave the project for the last minute. They have just had a 2 week break. The students didn't use the time wisely and then they complain they do not have enough time. They leave things until the deadline. (teacher interview, May 28, 2012).

R.10 Teachers understand projects are frustrating and difficult for students

Teacher 7: I see the students struggle because they struggled with understanding the issue, and they had difficulty doing extensive research. I had a goal that they could do this on their own but no I found that I had to do the projects as an in class assignment because they are problem understanding what was expected of them, such as working in a group, allocating the work and preparing the work together. (teacher interview, May 29, 2012)

R.11. Teachers identify cultural influences.

Teacher 2: The family call on the males is quite taxing as they have family obligations such as to help out with sick family members in hospital, to see uncles, etc. (teacher interview, May 22, 2012).

Teacher 4: Most of the time they work together in their groups, and they work on the goals for that section. Groups are not able to meet outside of school because of the cultural rules here, so they can only meet here in class.
Teacher 2: The students in the Arabian Peninsula seem to suffer from a lack of focus or have a maximum focus on any one thing at a time. They may focus on the classwork at only 20 minutes and then they get distracted and want to move onto something else. I am only able to present for 20 minutes and then if they undertake an in class project, they may stick with it for 20 minutes and then they go off onto their mobile to communicate with a friend or be online. It is a difficult to get students too focused. This is always challenging. (teacher interview, May 22, 2012).

Teacher 5: I have observed that male students have a positive attitude towards projects but they lose time due to family commitments which is outside their control. (teacher interview, May 27, 2012).

Teacher 6: Another problem is time management. The teacher can overemphasize it but the students have a range of commitments especially family commitments. If the students can see the project early, then they can be ready to organize themselves but they never do. ….One of the constraints that exist in this environment is that in being a woman. They have not done this kind of thing before. Their background knowledge is limited. They are used to being controlled and being taught what to do and working within a right/wrong framework. The openness of the project is confusing and a challenge for them. These students have to collect data, and learn how to have faith in themselves that they are doing the right thing and follow their own judgment. It is daunting for them. They find making decisions for themselves a challenge. ….Families can affect the student's project as they have to do family things like pick up kids, help with grandparents. Some families give freedom. It depends on the family. (teacher interview, May 28, 2012).

Teacher 6: One of the constraints that exist in this environment is that in being a female student here in the UAE. They have not done this kind of thing before. Their background knowledge is limited. They are used to being controlled and being taught what to do and working within a

right/wrong framework. The openness of the project is confusing and a challenge for them. These students have to collect data, and learn how to have faith in themselves that they are doing the right thing and follow their own judgment. It is daunting for them. They find making decisions for themselves a challenge.

Teacher 7: I find the female students are more focused than male students. This is the common experience of many teachers. We do not teach the same gender every term for each course and therefore, we get to experience that female students are more motivated. I know they quality of their work is better but at least they are working. The boys on the other hand, are not as reliable as students, particularly the male students who work and come to study in the afternoon. They just chat, play on their phones, play games and generally ignore the teacher. The biggest problem is trying to get them off their phone or fighting with them not being absent from class. No work gets done in class. (teacher interview, May 29, 2012)

R.12. Students lack of experience in PBL

Teacher 3: Each level of year has its differences and its own difficulties. Students in Year One face the hardest challenges as they are not experienced in projects. They required the greatest support, and they need everything explained in great detail. They also need to be spoon fed, even if they are given a very clear assessment criteria. Year Three students are different. They do not need so much support as they have had enough experience in doing projects. The project can be explained to them and they be left too it most of the time. (teacher interview, May 23, 2012)
Teacher 3: I also give help by giving samples of work to look at but the teacher expects the students to do their own solution to the problem, not to directly copy the example. But they will just copy the example I give them. These students are trapped mentally in not understanding what real work is and they need to work hard to accomplish it. They do not have this mentality to work hard. There are a lot of misunderstandings in how to work independent and what the teacher is intending. (teacher interview, May 23, 2012).
Teacher 3: What I do is to separate a larger project into smaller parts. I do not assign the project as one large project. Instead the project is divided into sections and has to be completed by a certain time and cumulatively it is correlated together. (teacher interview, May 23, 2012)

Teacher 5: Other difficulties they faced are they (the students) lack good research skills. They have no idea in how to create their own work. Even though they have the library and internet, they still find it hard to search for information on any topic. (teacher interview, May 27, 2012).

Some difficulties are that the students struggle with the openness of doing a project. They wonder about the end product as if it is wrong or right. They struggle with the lack of a closed endness of a project. They find it difficult to cope and they have no idea in what to do. They can collaborate together but it comes with limitations. They have problems with long term self-management. (teacher interview, May 28, 2012).

Teacher 7: I want them to think their own questions and then use the skills of an effective problem-solver and creative thinker to generate answers. But often the students have less experience in problem solving and also have very little experiences, so they do not have a deep and lasting understanding of what is being stated in the academic textbook. I would like them to have this situation where they have deeper learning and understanding of business concepts. What I find is that the students are learning the concepts alongside the project and they are having a hard time in applying they know. They do struggle. (teacher interview, May 29, 2012)

Teacher 7: his is admittedly a different way of learning for many of my students. Some need time to get used to learning in new ways, especially if their prior experience has been very traditionally directed and teacher directed. Many students need teacher guidance about how to collaborate effectively, think critically, and unleash their creativity. (teacher interview, May 29, 2012)

Teacher 3: They also need more research skills experience as they are really undeveloped in this area. (teacher interview, May 23, 2012).

R.13. Students lack of life experiences

Teacher 2: Some students I notice have a problem with the subject content of business and putting this into real practice. They find it difficult expressing the right ideas, theories or practicalities. This could be due to lacking an understanding in what goes on in a business. Not sure. (teacher interview, May 22, 2012).(teacher interview, May 24, 2012).

Teacher 3: They have no idea of what a cover page is, or to make a contents page. They lack always to hand in a basic layout of a good report. (teacher interview, May 23, 2012)
Teacher 4: The problem for the students is that they lack essential background IT knowledge skills. This means I have to spend a lot of time explaining IT concepts or content which have no background on. This makes doing PBL projects difficult for me. (teacher interview, May 24, 2012).
Teacher 5: The students have not idea in how to do a business and the nature of the businesses. Basically their basic background experience is so limited. They do not understand simple everyday things we take for granted like paying a telephone bill, as their parents do it for them. (teacher interview, May 27, 2012).
Teacher 6: Students do lack abilities to meet deadlines and we have a system of meeting each other but they fail to meet on the appointment times. That is frustrating! (teacher interview, May 28, 2012).
Teacher 2: Another issue is that the students have no actual real experience in business and this lack of experience means they get lost in what they are learning. (teacher interview, May 22, 2012).

R.14. Teachers feel student's English proficiency is inadequate for projects.

Teacher 1: This depends on their level, but they struggle understanding the teacher instructions, which occur with the lower levels of the course. They misunderstand what has to be done. They have problems understanding what the task is about. (teacher interview, May 21, 2012).

Teacher 1: Another issue is the internet and the issues it brings with easy access and plagiarism. The resources online are readily available but the material is not as good as books. Since we have been putting plagiarism software in place, this has helped ensure that students are not taking things directly from the internet, particularly Wikipedia. (teacher interview, May 21, 2012).

Teacher 2: Another problem is that here it is not a reading culture, and therefore they cannot get the benefits from reading important and essential material from business journals, magazines. Another thing I notice at times is that students come to me for feedback on their project and I give this but they find it hard to accept that there is no right answer. They have compared their work to other classmates and they feel they are way off target, making them feel insecure and

they do not like being told there is no right answer. ….. I have never seen so much blatant copying by students, i.e. copy and paste and this is an unsettling feeling of seeing so much plagiarism being handed in the system. (teacher interview, May 22, 2012).
Teacher 3: I am frustrated with my student's grammar and spelling. They have done the foundations course and they still make many simple mistakes that I should not be seeing in Year 3 students. Another issue is that students cannot reference their work properly. They do not know APA referencing, and they need to be shown how to do this. Teachers spent a lot of time explaining a lot of things that they assumed students would automatically know or have had experience in. But they don't. (teacher interview, May 23, 2012)

Teacher 3: They lack basic ideas that they need to proof read their work, often they think that once it is finished, it is complete. (teacher interview, May 23, 2012)

Teacher 4: The level of the students English is problematic but it is problematic in many levels. The students may struggle with finding appropriate resources because they cannot identify which resources are useful. Then they have problems reading the resources, this goes down as far as not understanding certain vocabulary or understanding a section of text. Therefore, they plagiarize the text thinking that this action will satisfy the teacher. Then there are English issues with the students talking to each other. They often may resort to speaking in Arabic and I have to encourage them continually to speak in English as I monitor the groups. But often, the students will just come to me to resolve any problems the group has, which is often a student complaining they are doing all the work and they need my intervention. (teacher interview, May 24, 2012).

Teacher 4: In the presentation students have formatting issues in the slides, things are not referenced properly. Then there's the presentation skills, students struggle to explain their thoughts clearly. Then when reading the report, I come across alot of sections plagarised from resources that I have given them and I have stated clearly, marks will deducted for this but… that is what happens here a lot. (teacher interview, May 24, 2012).

Teacher 5: Students need a lot of support in their English language skills. Their English is very weak….Another issue is that students have frustrations with their poor English. Their level of English is a barrier in doing projects. You can see this in their presentations as they cannot

express themselves. The students are unable to defend themselves in what choices they have made when asked examination questions by the presentation examiners. (teacher interview, May 27, 2012). (teacher interview, May 28, 2012).

Teacher 6: Another thing is that they are constantly sharing work together or copying directly from another student. They think that doing this is a safe thing to do and is not identified by them as plagiarism. Plagiarism is a strange concept for them. They feel copying a piece of work and calling it something as their own is something normal to them. This may stem from their past education experiences….
They have great problems with English. They have done IELTS but it does not prepare them for this level of work and they need to learn about how to write academically, such as how to write a methodology, contents list, etc. They find it hard to write a paragraph and use headings. It is a big struggle. (teacher interview, May 28, 2012).