



Faculty of Cognitive Sciences and Human Development

**Tertiary Learning Readiness among Pre-University Students in
some Institutions in Sabah and Sarawak**

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**Master of Science
2018**

Tertiary Learning Readiness among Pre-University Students in some
Institutions in Sabah and Sarawak

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A thesis submitted

In fulfilment of the requirements for the degree of Master of Science

(Learning Sciences)

Faculty of Cognitive Sciences and Human Development
UNIVERSITI MALAYSIA SARAWAK
2018

DECLARATION

I, Yet Yong Seng, 14020088, from the Faculty of Cognitive Sciences and Human Development, hereby declare that the work entitled “Tertiary Learning Readiness among Pre-University Students in some Institutions in Sabah and Sarawak” is my original work. I have not copied from any other students’ work or from any other sources except where due reference or acknowledgement is made explicitly in the text, nor has any part been written for me by another person. The thesis has not been accepted for any degree and is not concurrently submitted in candidature for any other degree.

Yet Yong Seng (14020088)

Date submitted

ACKNOWLEDGEMENT

Praise God, the Almighty for His Riches, Wisdom, and Blessing, which are beyond what man can search and trace. He granted me the passion and zeal to complete my master study. Many have lent a helping hand in completing the work, I would like to offer my sincere gratitude to them.

First and foremost, I would like to express my grateful thanks to my beloved parents, Yet Ah Kong and Yee Yu Ein, my aunt, Yet Nga, my cousin, Derek Tan and Totomy Tan. They have been giving me supports and motivations throughout the years in the university ceaselessly.

Special thanks to Universiti Malaysia Sarawak (UNIMAS) and the Faculty of Cognitive Sciences and Human Development (FSKPM) that have provided me with a supportive studying environment throughout the completion of this study. This study would not have been possible without the support and funding of the University.

Among the lecturers who have helped me with this project, firstly, I would like to show my gratitude to my supervisor, Associate Professor Dr. Norazila Abdul Aziz, for her guidance all the way to completion of this study. Although she is going through a tough time in her life, she keeps a positive attitude when facing challenges. Besides, I would like to express my heartfelt thanks to Professor Dr. Hong Kian Sam for his constructive advices, motivation, and immense knowledge in helping me to complete the study. I would not have gotten this far and made it through the challenges without him. I can never thank him enough for helping me through my most stressful times. Special thanks to my ex-mentor, Ms. Oon Yin Bee, a mentor for a day is a mentor for a lifetime.

Also, for my comrades in arms, Samihah Binti Dollah, Johnny Ngu, Hii Kah Yung and Tang Yi Hao who always listen to my annoying and anxious grievance. They have greased the wheels whether directly or indirectly in helping me to complete the thesis. Finally, yet importantly, I would like to thank you, the reader for taking your time to read this thesis, I hope all the knowledge and experiences I gained through working out this thesis could bring benefit to the society.

ABSTRACT

This study investigated tertiary learning readiness among pre-university students enrolled in sixth form, matriculation and public university foundation study pathways of some institutions in Sabah and Sarawak. This study measured students' readiness for tertiary learning from a psychosocial perspective. In addition, this study also investigated differences in readiness for tertiary education based on gender, ethnicity, study pathway and English Language use at home. A comparative cross-sectional survey research design was used in this study. An instrument, PRITES (Psychosocial Readiness for Tertiary Education Scales) was used to collect data on students' psychosocial readiness for tertiary learning. PRITES measured five dimensions of psychosocial readiness, namely, Academic Self-Efficacy, Self-Regulated Learning, Effort and Mindset, Motivation and Goal Orientation and Persistence and Determination. The sample of the study was 481 students in Sabah and Sarawak. Findings of the study showed that the students had a moderate level of psychosocial readiness for tertiary education. Specifically, they were moderately ready in terms of Effort and Mindset, Motivation and Goal Orientation and Persistence and Determination. Female students, students at foundation study pathway and Malay students were readier in terms of their psychosocial readiness for tertiary learning. Hence, based on the findings of this study, it is suggested that the relevant authorities consider designing appropriate intervention strategies to elevate students tertiary learning experience specifically targeted at male students, sixth formers and Malay students. Further studies involving longitudinal and experimental study design and a wider range of students with equivalent qualifications (such as polytechnic and community colleges diploma study pathways) should also be carried out to validate the results from this study.

Keywords: Tertiary learning readiness, psychosocial dimensions, Pre-university.

***Kesediaan Pendidikan Tinggi dalam kalangan Pelajar-pelajar Pra-universiti
di Sabah dan Sarawak***

ABSTRAK

Kajian ini menyiasat kesediaan pendidikan tinggi dalam kalangan pelajar-pelajar pra-universiti yang didaftarkan dalam aliran pengajian tingkatan enam, matrikulasi dan pengajian asas universiti awam di Sabah and Sarawak. Kajian ini mengukur kesediaan pelajar untuk pembelajaran pendidikan tinggi dari perspektif psikososial. Di samping itu, kajian ini juga menyiasat perbezaan kesediaan untuk pendidikan tinggi berdasarkan jantina, etnik, aliran pengajian dan penggunaan Bahasa Inggeris di rumah. Reka bentuk penyelidikan tinjauan keratan rentas perbandingan digunakan dalam kajian ini. Instrumen, PRITES (Skala Kesediaan Psikososial untuk Pendidikan Tinggi) digunakan untuk mengumpul data mengenai kesediaan psikososial pelajar untuk pembelajaran pendidikan tinggi. PRITES mengukur lima dimensi kesediaan psikososial seperti Keberkesanan Diri Akademik, Pembelajaran Regulasi Kendiri, Usaha dan Pemikiran, Motivasi dan Orientasi Matlamat dan Ketekunan dan Penentuan. Sampel kajian ini adalah seramai 481 pelajar di Sabah dan Sarawak. Dapatan kajian ini menunjukkan bahawa pelajar-pelajar dalam kajian ini mempunyai tahap kesediaan psikososial yang sederhana untuk pendidikan tinggi. Secara khusus, mereka adalah di tahap sederhana bersedia dari segi Usaha dan Pemikiran, Motivasi dan Orieantasi Matlamat, dan Ketekunan dan Penentuan. Kelompok pelajar wanita, pelajar dari aliran pengajian asasi universiti awam dan pelajar Melayu merupakan kelompok yang lebih bersedia dari segi kesediaan psikososial untuk pembelajaran pendidikan tinggi. Oleh itu, berdasarkan penemuan kajian ini, pihak berkuasa yang berkaitan dicadang mempertimbangkan reka bentuk strategi intervensi yang sesuai untuk memperbaiki dan meningkatkan pengalaman pembelajaran pendidikan tinggi pelajar disasarkan kepada pelajar lelaki, pelajar tingkatan enam dan pelajar

Melayu. Kajian lanjut yang melibatkan reka bentuk kajian membujur dan eksperimen dan pelbagai pelajar yang mempunyai kelayakan yang setaraf (seperti Politeknik dan aliran diploma Kolej Komuniti) perlu dijalankan untuk mengesahkan keputusan dari kajian ini.

Kata kunci: *Kesediaan pendidikan tinggi, psikososial dimensi, Pra-universiti*

TABLE OF CONTENTS

	Page
DECLARATION	i
ACKNOWLEDGEMENT	ii
ABSTRACT	iv
ABSTRAK	v
TABLE OF CONTENTS	vii
LIST OF TABLES.....	xii
LIST OF FIGURES.....	xv
LIST OF ABBREVIATIONS.....	xvi
CHAPTER 1 INTRODUCTION.....	1
1.1 Introduction.....	1
1.2 Background of Study	1
1.3 Problem Statement.....	6
1.4 Purpose of Study	14
1.5 Research Objectives and Research Questions	15
1.5.1 General Objective.....	15
1.5.2 Specific Objectives.....	15
1.5.3 Research Questions	16
1.6 Research Hypotheses	17
1.7 Operational Definition of Terms	19
1.7.1 Tertiary education institutions.....	19

1.7.2 Tertiary learning readiness	19
1.7.3 Study Pathways	21
1.7.4 Ethnicity	22
1.7.5 Language	22
1.8 Conceptual Framework.....	22
1.9 Significance of the Study	23
a. Contribution to Knowledge	24
b. Contribution to Education Practitioner	24
c. Contribution to Methodology	25
1.10 Limitations of the Study	25
1.11 Summary.....	26
CHAPTER 2 LITERATURE REVIEW	27
2.1 Introduction.....	27
2.2 Tertiary Learning Readiness.....	27
2.3 Theoretical Framework - Human Ecology Theory.....	32
2.4 Psychosocial factors influencing Readiness for Tertiary Education	38
2.4.1 Academic Self-Efficacy (ASE).....	38
2.4.2 Self-Regulation Learning Strategies (SRL)	39
2.4.3 Effort and Mindset (EM).....	40

2.4.4 Motivation and Goal Orientations (MGO).....	40
2.4.5 Persistence.....	41
2.5 Demographic Characteristics influencing Tertiary Education Readiness	42
2.5.1 Gender differences.....	43
2.5.2 Ethnicity differences.....	46
2.6 Study Pathways (Entry Qualification)	49
2.6.1 Sixth Form	53
2.6.2 MOE Matriculation.....	54
2.6.3 Public University Foundation Program (<i>Asasi</i>)	55
2.7 Language Use at Home.....	59
2.8 Studies on Non-Academic Determinants for Readiness in Tertiary Education. 61	
2.8.1 Ramp-Up to Readiness.....	61
2.8.2 Postsecondary Education Readiness Test (P.E.R.T.).....	63
2.8.3 Personal Readiness Evaluation for Postsecondary (PREP)	63
2.8.4 Personal Readiness in Tertiary Education Scale (PRITES).....	64
2.9 Summary.....	65
CHAPTER 3 METHODS	66
3.1 Introduction.....	66
3.2 Research Design	66

3.3 Research Location	66
3.4 Research Population	67
3.5 Participants and Sampling Procedure	68
3.6 Research Instrument	70
3.7 Development of PRITES	75
3.8 Data Collection Procedures	77
3.9 Data Analyses	78
3.9.1 Data Screening	80
3.9.2 Independent samples t-test	80
3.9.3 One-way Analysis of Variance (ANOVA)	80
3.10 Summary	81
CHAPTER 4 FINDINGS	82
4.1 Introduction.....	82
4.2 Demographics of the Participants	82
4.3 Readiness for Tertiary Learning	84
4.3.1 Differences in Level of Readiness based on Gender.....	86
4.3.2 Differences in Level of Readiness based on Ethnicity.....	87
4.3.3 Differences in Readiness Level based on Study Pathways	91
4.3.4 Differences in Level of Readiness based on Language used at Home.....	95

4.4 Summary of Findings	97
4.5 Summary	98
CHAPTER 5 DISCUSSION AND CONCLUSION	99
5.1 Introduction.....	99
5.2 Summary of the Study	99
5.3 Discussion of Findings	102
5.4 Implications of the Study	111
5.5 Limitations of the study	112
5.6 Recommendations of the study	113
5.7 Summary of the study	114
5.8 Conclusion	117
REFERENCES	118
APPENDICES.....	139

LIST OF TABLES

	Page
Table 1.1 Centralised public examinations at different education level.	7
Table 1.2 Enrolment in public universities.	12
Table 1.3 Summary of Research Objectives, Research Questions and Research Hypotheses	18
Table 2.1 Synopsis of Entrants, Enrolment, and Graduate based on gender.	44
Table 2.2 Total enrolment and percentage of female students in Matriculation.	45
Table 2.3 Centralised public examinations at different education level.	50
Table 2.4 Upper Six enrolment (combining student from science stream and art stream).	54
Table 2.5 Matriculation enrolment.	55
Table 2.6 Major study paths that are recognised by Malaysia public university.	56
Table 2.7 Comparison of Faculty of Information Science and Technology mean CGPA based on STPM CGPA.	57
Table 2.8 Comparison of Faculty of Information Science and Technology mean CGPA based on matriculation CGPA.	58
Table 3.1 Item list.	71

Table 3.2	Total score of each psychosocial dimensions of readiness for tertiary learning.	74
Table 3.3	Ranges for readiness level for tertiary learning.	74
Table 3.4	Five dimensions and it's reliability.	76
Table 3.5	Summary of research questions.	79
Table 4.1	Summary of participants' demographics.	83
Table 4.2	Means and standard deviations for readiness for tertiary learning.	85
Table 4.3	Gender differences in tertiary learning readiness.	87
Table 4.4	Differences in level of readiness between the three ethnic groups.	88
Table 4.5	Tukey HSD results for overall readiness between ethnicity.	89
Table 4.6	Tukey HSD results for Academic Self Efficacy readiness between ethnicity.	90
Table 4.7	Tukey HSD results for Effort and Mindset readiness between ethnicity.	90
Table 4.8	Tukey HSD results for Motivation and Goal Orientation readiness between ethnicity.	90
Table 4.9	Differences in tertiary learning readiness between study pathways.	92
Table 4.10	Overall level of readiness for different study pathways.	93
Table 4.11	Academic Self-Efficacy readiness for different study pathways.	93

Table 4.12	Motivation and Goal Orientation readiness for different study pathways.	94
Table 4.13	Self-Regulated Learning Strategy Use readiness for different study pathways.	94
Table 4.14	Effort and Mindset readiness for different study pathways.	95
Table 4.15	Differences in readiness for tertiary learning based on language use at home.	96
Table 4.16	The summary of the findings as reported in the previous sections.	97

LIST OF FIGURES

		Page
Figure 1.1	Four fundamental facets of tertiary learning readiness model.	4
Figure 1.2	Chronosystem.	10
Figure 1.3	Research Framework.	23
Figure 2.1	Major components of the ecological theory.	34
Figure 2.2	Key elements of college readiness.	36

LIST OF ABBREVIATIONS

ACT	American College Testing
ASE	Academic Self Efficacy
CGPA	Cumulative Grade Point Average
EFA	Exploratory Factor Analysis
EM	Effort and Mindset
GPA	Grade Point Average
KPTN	<i>Karnival Pengajian Tinggi Negara</i>
MGO	Motivation and Goal Orientation
MOHE	Malaysian Ministry of Higher Education
MOE	Malaysian Ministry of Education
MUET	Malaysian University English Test
PD	Persistence and Determination
PMR	<i>Penilaian Menengah Rendah</i>
PRITES	Personal Readiness in Tertiary Education Scale
PREP	Personal Readiness Evaluation for Postsecondary
PT3	<i>Pentaksiran Tingkatan 3</i>
SAT	used to known as Scholastic Assessment Test
SKM	<i>Sijil Kemahiran Malaysia</i>
SPM	<i>Sijil Pelajaran Malaysia</i>
SRL	Self-Regulated Learning
STPM	Sijil Tinggi Persekolahan Malaysia
UPSR	<i>Ujian Pencapaian Sekolah Rendah</i>

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter is divided into eleven main sections. Section 1.2 discusses the background of the study. Section 1.3 provides the problem statement of this study. Section 1.4 stated the purpose of this study. Section 1.5 lists the research objectives and research questions of the study. This is followed by Section 1.6 which discusses the research hypotheses of the study. Section 1.7 summarized the research objectives with the relevant research questions and research hypotheses. The next section provides the operational definitions of the relevant terms used in this study. Section 1.8 gives an overall view of the research through the conceptual framework of the study. Section 1.9 discusses the significance and the importance of the study. This is then followed by Section 1.10, which lists the limitations of this study. Lastly, Section 1.11 summarizes the chapter.

1.2 Background of Study

The Malaysian Ministry of Higher Education (MOHE) has conducted its annual carnival event known as “*Karnival Pengajian Tinggi Negara (KPTN)*” since 2005. The objective of the event is to serve as a “one stop centre” that disseminates the latest information concerning tertiary education such as, study opportunities, scholarships, and student loan to the targeted groups including the applicants, parents, educators and communities (Ministry of Education, 2016). Starting from 2010, a tagline “JOM MASUK U” was used to provide applicants with up to date news and information on university

application. A series of activities are featured in the event such as counselling services, exhibition, forum, guidance and quizzes to raise public awareness of the importance of tertiary education. Through such activities, it is hoped that the applicants will be made aware of and understand the different options available for tertiary education pursuit.

In the Malaysian context, students must complete a minimum of one year in pre-university program (Matriculation/Public University Foundation) or one and a half schooling years in postsecondary program (*Sijil Tinggi Persekolahan Malaysia*, STPM [Malaysian Higher School Certificate]) after their secondary study to be eligible for public tertiary education study. At the end of their postsecondary school programs, they are required to pass the relevant public examinations. Only students who fulfil the minimum entry criteria are considered for enrolment in public university. Furthermore, students who score better academic achievement in public examination (high-stakes tests) are more likely to succeed in entering public university. Academic achievement which is assumed to reflect one's understanding of academic knowledge has been widely used as an indicator to measure a student's eligibility for further education at Malaysian public university.

However, researches have shown that students' readiness for tertiary education is one of the factors affecting first-year study success or attrition (Jansen & Meer, 2011). Many students who graduated with satisfactory grades in post-secondary school examinations are not ready for tertiary education (Minnesota Office of Higher Education, 2010; Aud, Hussar, Johnson, Kena, Roth, Manning, Wang, & Zhang, 2012). Some studies such as Baker, Clay and Gratema (2005) has found other non-cognitive factors that contribute to tertiary learning readiness. Conley (2007) further refer to tertiary learning readiness as a multidimensional concept consisting of both internal and external variables

such as an individual psychosocial dimension. Key cognitive strategies, content knowledge, academic behaviours, and contextual skills and awareness are four essential components that made up an individual's psychosocial dimensions.

The Malaysian education system adopted centralised public examinations (high-stakes tests) as a dominant form of assessment to assess students' levels of understanding on academic content knowledge (Ong, 2010). Academic results of pre-university studies and public examinations such as STPM, matriculation and public university foundation programs are traditionally considered as criteria for public university entrance (Ministry of Education, 2007; Ministry of Higher Education, 2014) implying that these achievements are used as indicators for success at tertiary education levels. However, researchers in studies conducted in the Western countries have found out example of other factors that also contribute to the success at tertiary study such as self-regulated learning strategies, self-efficacy and motivation (Robbins, Lauver, Le, Davis, Langley & Carlstrom, 2004; Baker et al., 2005; Robbins, Allen, Casillas, Hamme Peterson, & Le, 2006; Conley, 2007).

Drawing on literature review of tertiary education success, Conley (2010) has identified and categorised a number of external variables such as an institution's culture, norms, and traditions and internal variables such as student's comprehension and communication skills into a key facet four-part model. Figure 1.1 shows four fundamental facets of tertiary learning readiness with key cognitive strategies at the centre, surrounded by key content knowledge, academic behaviours, and contextual skills and awareness at the outer layer.

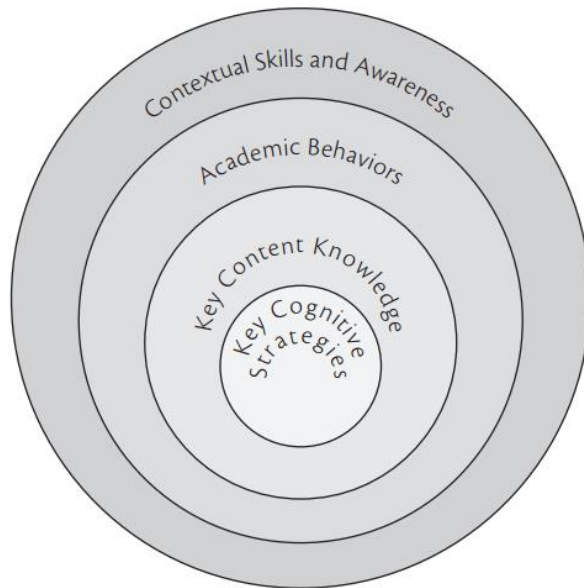


Figure 1.1: Four fundamental facets of tertiary learning readiness model, adapted from Conley (2010, p 32).

Similarly, research has been conducted to study psychosocial predictors and the variance accounted by the predictors in tertiary learning success (Robbins et al., 2004). Robbins et al. found that a higher variance in predicting success in tertiary learning can be achieved when traditional predictor such as results from high-stakes tests is combined with psychosocial predictors. Psychosocial predictors such as academic self-efficacy (Bandura, 1977), self-regulated learning strategies (Kitsantas, Winsler, & Huie, 2008), effort and mindset (Blackwell, Trzesniewski, & Dweck, 2007), motivational goal orientation (Harackiewicz, Barron, Tauer, & Elliot, 2002) and persistence and determination (Duckworth & Seligman, 2006) were found to be associated with academic performance in Western studies (Pohl, 2012; Robbins et al., 2004).

Academic self-efficacy refers to one's personal judgments of his or her capabilities to operate and execute courses of action to achieve predetermined educational goals (Bandura, 1977, 1997). The beliefs that learners hold about their capabilities and achievements of their efforts affect the ways they act. Studies indicate that self-efficacy

influences learning, academic achievement motivation and academic outcome (Rahil Mahyuddin, Elias, Loh, Muhamad, Noordin, & Abdullah, 2006; Yusliza Mohd. Yusoff, 2012). Being ready in academic self-efficacy indicates that the students have high confidence upon their ability to accomplish their goals in learning such as their academic competence and expectancies for success.

Students who have the ability to use self-regulated learning strategies are generally characterized as active learners (Schunk & Zimmerman, 1994). They manage their learning experiences in an active and practical manner by determining learning goals and monitoring their behaviour, cognition and motivation guided by their goals and the environment (Pintrich, 2000). Thus, self-regulated learners are also described as persons who are motivated to participate actively in learning, through setting learning goals, choosing and adjusting learning strategies, and reflecting on the effectiveness of the strategies (Zimmerman & Schunk, 2011). Being ready in self-regulated learning strategy means students are able to use appropriate strategies to manage their own learning, including self-monitoring, planning, self-evaluating, study skills, and seeking help when necessary.

Effort and mindset refers to students' view on how failure and success in learning process could be associated with the effort they put in learning (Ames & Archer, 1988). When students relate previous academic achievements to the effort they spent, they are more likely to put more effort in the future (Dweck & Leggett, 1988). Students with a 'growth mindset' are more encouraged to engage in learning and surpass those with 'fixed mindset' (Blackwell, Trzesniewski, & Dweck, 2007).

Motivation or goal orientated refers to the psychological feature that arouses a learner to perform actions in certain activities so as to achieve a desired goal such as obtaining good academic achievement (Covington, 2000; Eccles & Wigfield, 2002; Zimmerman & Schunk, 2008). Researchers have found differences in motivational level for different gender and ethnic groups. Research showed that male students have higher achievement-related beliefs in the areas of science, mathematics, and sports while female students were reported to have better motivation patterns in arts, reading and language (Glienke, & Askew, 2009; Murdock, 2009; Meece).

Persistence and determination are closely interrelated to students' effort, mindset and goal orientation. They allow learners to sustain a long-term goal-directed behaviour despite difficulties (Duckworth & Seligman, 2006; Robbins et al., 2004, 2006). Studies have shown that students who believed that their hard work would lead to better achievements and set reachable target for themselves were more likely to persist in learning process (Grant & Dweck 2003, Wolters, 2004).

1.3 Problem Statement

The Malaysian education system, which is similar to most Asian countries (Choi, 1999; Ong, 2010), has focused on public examination results as an important indicator of students' ability to progress to higher levels of education or occupational opportunities (Chiam, 1984; Ong, 2010). According to Marimuthu, Mukherjee and Jasbir (1984), the examination-oriented education system influences the learning behaviour of nearly half of the target students. Schooling level, examination achievements and academic certificates

were seen as a gateway to employment and privileged occupations (Nurul-Awanis, Hazlina, Lee & Zariyawati, 2011).

In terms of schooling duration, the education system in Malaysia includes up to 14 to 16 years of study comprising of pre-school (1 year), primary education (6 years), lower secondary education (3 – 4 years), upper secondary education (2 years) and pre-university/post-secondary study (1 – 2 years) to prepare an individual academically for university study. Different focus is given to each level of education. Students are required to sit for a centralised public examination conducted by the Malaysian Ministry of Education (MOE) at the end of each level of study (Table 1.1). However, some examinations for the university-based foundation programs are conducted by private or public institutions that conducted the programs.

Table 1.1: Centralized public examinations at different education level.

Education level	Age group	Duration	Public Examination
Preschool	5 – 6	2	-
Primary	7 – 12	6	UPSR
Lower Secondary	13 – 15/16	3 – 4	PT3
Upper Secondary	16/17 – 17/18	2	SPM
Post-Secondary	18 – 19	1 – 2	STPM/Matriculation/Foundation

After completing two years of upper secondary education, students can opt to continue in the different post-secondary programs offered by the MOE, based on their previous academic achievement (i.e. SPM). Students may further their study to various study pathways such as the sixth form, matriculation programs conducted by the MOE, public university foundation programs or other equivalent programs run by public institutes and universities (refer Appendix B). These programs are set up with the aim of preparing students for tertiary study in public universities in Malaysia. This study focuses on the main study pathways to enter public university in Malaysia, and does not include other study options such as polytechnics, community colleges, teacher training institutions, vocational training institutions and private university or college.

Centralized public examination became considerably high-stakes when it serves as the main determinant for university entrance (Ministry of Education, 2007; Ministry of Higher Education, 2014). The Ministry has also been awarding scholarships to high performing students in public examinations (Ong, 2010). Thus, students with good academic performances are expected to be successful in their tertiary studies. However, by emphasizing solely on good performance in public examinations as a measure of future academic and work success may result in graduates who do not fulfil the national philosophy of education with respect to holistic development encompassing emotional, intellectual, physical and spiritual development (Nurul-Awanis, Hazlina, Lee & Zariyawati, 2011).

Current university selection system may overlook some other factors that could contribute to university success. Although many studies have been carried out to understand factors that contribute to tertiary learning readiness and university success

(Conley, 2010; Robbins et al., 2004, 2006; Zwick & Sklar, 2005), educators continue to encounter difficulties in getting students to be well prepared for tertiary education due to the myriad of factors involved, from individual's attributes to the macrosystem in a society (Arnold, Lu & Armstrong, 2012).

Previous studies have indicated that some demographic factors such as gender, ethnicity, language and previous academic outcome may affect student academic performance in tertiary study (Kaighobadi & Allen, 2008; Meece, Glienke, & Askew, 2009; Jelas & Dahan, 2010; Arsad, Bauniyamin & Manan, 2014; Latifah Ismail, 2014). The human ecology theory of Urie Bronfenbrenner has been used to disclose the issue of tertiary learning readiness and university success (Renn & Arnold, 2003; Evans, Patton, Renn, Guido, Quaye, & Forney, 2010). The theory encompasses the factors affecting students' tertiary learning readiness in different environments (as shown in Figure 1.2) ranging from the immediate to the most distant: individual, microsystem, mesosystem, exosystem, and macrosystem.

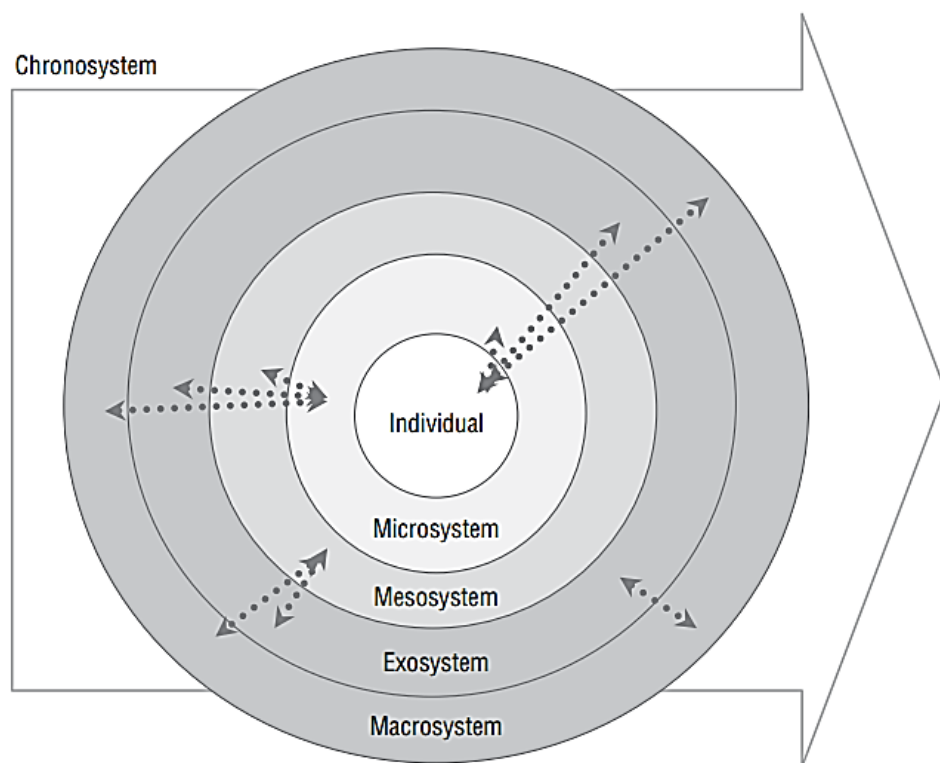


Figure 1.2: The Ecological Framework, adapted from Arnold et al. (2012, p 12).

This study focused on the “individual”, which is the core element of academic preparation based on Bronfenbrenner’s human ecology theory. This theory suggests that each learner develops their tertiary learning readiness via reciprocal interactions with environments. The interactions between learner and their environments are influenced by the individual’s behavioural, biological, cognitive and emotional characteristics (Arnold et al., 2012). Examples of these developmentally instigative characteristics are self-efficacy, academic content knowledge, self-regulated learning strategies, effort and mindset, determination, study skills and motivations.

Producing academically capable students has traditionally been the emphasis at schools. Even though many students’ secondary academic results may have met the

minimal standard required to graduate from secondary school they may not be university-eligible or tertiary education ready (Aud et al., 2012). This is because public examinations tend to focus more on measuring the eligibility of students to enter tertiary education (Ong, 2010), not gauging their preparedness of developmentally instigative characteristics. Students may have passed their exams at secondary level but still may not be ready to succeed in the programs of study at tertiary level (Baker et al., 2005; Arnold et al., 2012). Tertiary education indicators based solely on one-predictor such as public examination achievement have been consistently shown to be inferior to prediction models with multiple predictors (Zwick, 2002). Thus, by accounting for only post-secondary summative examination results may not be sufficient as a good indicator for accessing student readiness for tertiary learning.

Various assessments have been developed to measure students' readiness for tertiary learning, namely, Ramp-Up to Readiness (University of Minnesota, 2014), Readiness and Expectations Questionnaire (Jansen & Meer, 2011), Degree Compass (Denley, 2012), Postsecondary Education Readiness Test (Florida Department of Education, 2016) and Psychosocial Readiness in Tertiary Education Scales (Norazila Abd. Aziz, Hong, Hasbee Usop, Fitri Suraya, Lay, George & Gan, 2016b). Each of these assessments give focus on different aspects on personal readiness. However, they share the same goal, which is to enhance the preparation of student for tertiary study in university while they are still studying at secondary schools offering post-secondary STPM, university-based foundation centres or matriculation centres.

In the Malaysian public higher education context, tertiary education readiness is traditionally determined based on students' academic achievements in the STPM,

Matriculation or Public University Foundation summative examinations. These examinations measure students' content knowledge on various subjects such as languages, sciences, mathematics, geography, history, basic economics, principles of accounting and literature. The three different study pathways may provide a slightly different study environment and syllabus (Chong, 2011; Calla, 2016) and result in a different level of preparation in tertiary study.

As Malaysia moves towards enhancing access to quality tertiary education and reach its goal of turning the country into a “regional educational hub”, various action plans, and policies including ‘carnival events’, ‘11 Shifts’ and ‘14 Priority Initiatives’ have been endorsed and implemented in the past decade (Ministry of Higher Education, 2014). In tandem, there has been a steady increase for both local and international students in public universities for the past few years (Table 1.2). The number declined in 2016 may due to the rising cost of tertiary program and soaring cost of textbooks (New Straits Times, January 3, 2018).

Table 1.2: Enrolment in public universities. (Ministry of Higher Education, 2014, 2015, 2016).

Number of students	2011	2014	2015	2016
Local	520,979	531,522	589,998	506,226
International	26,008	28,837	27,619	25,823
Total	546,987	560,359	617,617	532,049

As admittance to tertiary institutions becomes more readily available, students' enrolment in tertiary education has increased dramatically in the past decades (Susan, 2008; Singh, Schapper, & Mayson, 2010). The increase in students' enrolment has resulted in a more diverse student population in terms of academic ability and social economic characteristics among others. Thus, readiness for tertiary learning criteria based solely on students' previous academic achievement may not sufficiently indicate students' preparedness.

Studies on tertiary education readiness have been carried out in the Western context especially in European countries and the United States of America. Past studies in the Western context have shown that students' readiness for tertiary learning can be better predicted using multiple instigative variables rather than just public examination results (Robbins et al., 2004, 2006; Pohl, 2012). However, empirical research in this area is generally lacking in the context of Malaysian education system. Some studies in the Malaysian context include finding relationships between students' self-efficacy level and English language achievement based on a descriptive-correlational study which conducted on 1,146 students from eight secondary schools in the Petaling district, Selangor in 2006. (Rahil et. al., 2006). A study on self-efficacy and expectancy for success of pre-university students was carried out to examine 105 pre-university engineering and business students from a private university in Sarawak in 2010. The findings shown that engineering students had better expectancy for success in projects working, problems solving, and personal success attainment than business students (Yong, F, L. 2010). In 2015, a study conducted to find readiness level of Self-Regulation Learning Strategies among the 13000 undergraduate students in 15 faculties at university Putra Malaysia (UPM) (Shayesteh

Hashemyolia, Azizan Asmuni, Ahmad Fauzi Mohd Ayub, Shaffe Mohd Daudl & Jasmin Arif Shah, 2015).

Although extensive research and efforts and policy amendments have been attempted to improve the measures of tertiary education readiness, the issue of getting student ready for tertiary education has not been conclusively resolved due to the complexity and diverse variables involved (Bailey & Dynarski, 2011). Many researchers in the field of tertiary education readiness aim to develop a collection of indicators that measures the different dimensions of students' readiness in order to determine differences in the level of readiness and enable early identification of students who may require more help to be ready and succeed in tertiary education. In this study, the level of tertiary learning readiness was measured using PRITES (Psychosocial Readiness in Tertiary Education Scale) (Norazila et al., 2016b). Demographic factors such as students' gender, ethnicities, study pathways, and language used at home were taken into account as they are also the factors at the centre of the chronosystem.

1.4 Purpose of Study

It is important to have alternative measures of students' readiness for tertiary learning. Once the students begin their tertiary study, it may be too late for them to develop the skills they need to succeed at this level of studies (Pohl, 2012). This study aims to explore the current level of preparedness among students studying at secondary schools, matriculation centres and university-based foundation centres in public universities in the states of Sabah and Sarawak. The research instrument of Psychosocial Readiness in Tertiary Education Scales (PRITES) (Norazila et al., 2016b) was selected for the

investigation. Results of the study could be used to advise and suggest interventions to enhance students' readiness for tertiary education, especially for Sabah and Sarawak.

1.5 Research Objectives and Research Questions

1.5.1 General Objective

The general objective of this research is to measure students' readiness for tertiary education from a psychosocial perspective using PRITES among Sixth form, matriculation, and public university foundation students in the states of Sabah and Sarawak. The dimensions of students' psychosocial readiness for tertiary education readiness measured in this study include academic self-efficacy, effort and mindset, motivation and goal orientation toward learning, self-regulated learning strategies and persistence and determination level (Norazila, 2016a, 2016b).

1.5.2 Specific Objectives

The specific research objectives of the study were:

- i. To determine students' level of psychosocial readiness for tertiary learning among pre-university students as indicated by PRITES.
- ii. To investigate gender difference in students' level of psychosocial readiness for tertiary learning.
- iii. To investigate ethnicity difference in students' level of psychosocial readiness for tertiary learning.

- iv. To investigate study pathways (STPM, Matriculation and Public University Foundation Programs) difference in students' level of psychosocial readiness for tertiary learning.
- v. To investigate the difference of psychosocial readiness of students for tertiary learning based on their language spoken at home.

1.5.3 Research Questions

This study investigated the following research questions which correspond to the specific research objectives stated above:

- i. What was the level of psychosocial readiness for tertiary learning among pre-university student indicated by PRITES?
- ii. Was there a difference in the level of psychosocial readiness for tertiary learning based on students' gender?
- iii. Was there a difference in the level of psychosocial readiness for tertiary learning based on students' ethnicity?
- iv. Was there a difference in the level of psychosocial readiness for tertiary learning based on students' study pathways?
- v. Was there a difference in the level of psychosocial readiness for tertiary learning based on students' language spoken at home?

1.6 Research Hypotheses

Research hypotheses have been made corresponding to the research questions (ii, iii, iv and v) stated above (there are no hypotheses made for the first research question):

H₀₁ : There was no significant difference between male and female students' level of readiness for tertiary education.

H₀₂ : There was no significant difference in students' level of psychosocial readiness for tertiary learning based on ethnicity (Malay, Natives of Sabah and Sarawak, and Chinese).

H₀₃ : There was no significant difference in students' level of psychosocial readiness for tertiary learning based on students' study pathways (Matriculation, Sixth Form and Public University Foundation pathways).

H₀₄ : There was no significant differences between language used at home in students' level of readiness for tertiary education based on the language spoken at home.

Table 1.3: Summary of Research Objectives, Research Questions and Research Hypotheses

Research Objectives	Research Questions	Research Hypotheses
i) To determine students' level of psychosocial readiness for tertiary learning among pre-university student indicated by PRITES.	i) What was the level of psychosocial readiness for tertiary learning among pre-university student indicated by PRITES?	-
ii) To investigate gender differences in students' level of psychosocial readiness for tertiary learning.	ii) Was there a difference in the level of psychosocial readiness for tertiary learning based on students' gender?	H ₀₁ : There was no significant difference between male and female students' level of readiness for tertiary education.
iii) To investigate ethnicity differences in students' level of psychosocial readiness for tertiary learning.	iii) Was there a difference in the level of psychosocial readiness for tertiary learning based on students' ethnicity?	H ₀₂ : There was no significant difference in students' level of psychosocial readiness for tertiary learning based on ethnicity.
iv) To investigate study pathways differences in students' level of psychosocial readiness for tertiary learning.	iv) Was there a difference in the level of psychosocial readiness for tertiary learning based on students' study pathways?	H ₀₃ : There was no significant difference in students' level of psychosocial readiness for tertiary learning based on students' study pathways.
v) To investigate the differences of psychosocial readiness of students for tertiary learning based on their language spoken at home.	v) Was there a difference in the level of psychosocial readiness for tertiary learning based on students' language spoken at home?	H ₀₄ : There was no significant difference between language used at home in students' level of readiness for tertiary education based on the language spoken at home.

1.7 Operational Definition of Terms

Some important terms have been defined or re-defined in relation to this research.

1.7.1 Tertiary education institutions

Tertiary education institutions refer to post-secondary education institutions where students further their study after completing their secondary learning. In this study, the term tertiary education is used interchangeable with university education and college education as used in a number of studies in the Western literature (Wiley, Wyatt, & Camara, 2011; Arnold et al., 2012; Conley, 2012).

1.7.2 Tertiary learning readiness

According to Conley (2005), a student who is college-ready is able to meet college expectation. He or she can complete all assigned courses without any remediation in a given period of time. In the context of higher education in Malaysia, there are no specific remediation program offered under the local pre-university as part of its programs. In this study, the notion of “tertiary learning readiness” was slightly attuned to fit the context. Tertiary learning readiness referred to students’ psychosocial readiness for successful tertiary learning comprising of academic self-efficacy, self-regulated learning strategies, effort and mindset, motivation and goal orientation and persistence and determination. Student who are ready is expected to enrol and succeed (graduated) in a tertiary education program within a given period of time.

The term ‘psychosocial’ refers to processes or factors that are both social and psychological in origin. American College Testing (2007) stated that psychosocial dimensions involved measurement of self-regulatory, motivation, and social engagement constructs (e.g. communication skill and social connection).

Based on Robbins et al. (2004), a number of psychosocial dimensions are found to play a role in contributing to students’ freshman year GPA. Some influential psychosocial dimensions found include academic goals, academic self-efficacy, achievement motivation and academic-related skills. Other psychosocial dimensions include effort or mind set (Blackwell, Trzesniewski & Dweck, 2007), academic persistence or discipline (Robbins et al., 2006), self-regulated learning (Schmitz & Wiese, 2006), and goal orientation (Harackiewicz, Barron, Tauer, & Elliot, 2002). In this study, psychosocial dimensions investigated were academic self-efficacy, self-regulated learning strategies, effort and mindset, motivation and goal orientation and persistence and determination (Norazila et al., 2016b).

In this study, “Academic self-efficacy” refers to learners’ belief about their capability and expectancies for failure or success in learning process (Rahil, Habibah, Loh, Muhd, Nooreen, & Maria, 2006; Kitsantas et al., 2008).

In this study, “Self-regulated learning” refers to the degree where students are actively participating in the learning process (Zimmerman, 1989). As suggested by Gardner (1963), personal initiative plays an important role in one’s learning process as “the ultimate goal of the education system is shifted to the individual the burden of pursuing his own education” (p. 21).

In this study, “Effort and Mindset” refers to the effort learners spend on their homework or school assessments and their perspective on success and failure. When students attribute academic failures and successes to their level of effort, they would relate and consider putting more effort in the future (Ames & Archer, 1988). In this study, “Effort and Mindset” is defined as one perspective on how their cognitive ability is predetermined by the amount of effort they allocate for academic duty.

In this study, “Motivation and Goal Orientation” refers to the impetus one has for learning and succeed in schools. “Motivation and goal orientation” affects how a learner treats his or her coursework, setting goals, and strive for learning. Effort and Mindset and goal orientation are intricately associated to with persistence a learner possessed. Learners’ “Persistence and Determination” refers to their ability to retain effort and remain involving in goal-directed behaviour despite of difficulties (Robbins et al., 2004; Duckworth & Seligman, 2006; Robbins et al., 2006).

1.7.3 Study Pathways

This study focused on the main study pathways to public university in Malaysia, also known as pre-university study programme, including post-secondary study (Sixth form) provided in selected secondary schools, and pre-university study, such as matriculation and university-based foundation (e.g. Asasi) provided in public universities in Sabah and Sarawak. The terms “pre-university” and “post-secondary” were used interchangeably in this study. The term “university-based foundation” and “Asasi” were used interchangeably with “Public University Foundation” in this study.

1.7.4 Ethnicity

Malaysia is a multi-ethnic society. This study investigated the differences in the level of psychosocial readiness for tertiary learning based on students' ethnicity including the Malays, Natives (Bumiputera) in Sabah and Sarawak and Chinese. "Natives of Sabah and Sarawak", specifically referring to the non-Malay indigenous groups such as *Iban*, *Bidayuh*, *Melanau*, *Orang Ulu* and others, were categorized as a separate category in this study.

1.7.5 Language

Language is part of the macrosystem that enshrines the fundamental ideas of a society, it influences other levels of the environment in the chronosystem. The main purpose of language, in the sense of transmission of information from one person to another, is to serve as a tool to deliver an expression, idea, knowledge and facilitate communication (Vygotsky, 2012).

English is still a widely used language today and it can be considered as an effective medium for communication in the field of business, industries and technology (Arsad, Bauniyamin & Manan, 2014). This study investigated the relationship between language spoken at home (English) and academic performance.

1.8 Conceptual Framework

Figure 1.3 shows the relationship between the independent and dependent variables in the study. The independent variables were gender, study pathways, ethnicity and English

use at home. These independent variables were hypothesized to have an impact on the intermediate variables (psychosocial dimensions) and thereby impact upon the dependent variable, level of psychosocial readiness for tertiary learning. The readiness for tertiary learning were measured using the psychosocial dimensions such as academic self-efficacy, self-regulated learning strategy, effort and mindset, motivation and goal orientations and persistence and determination.

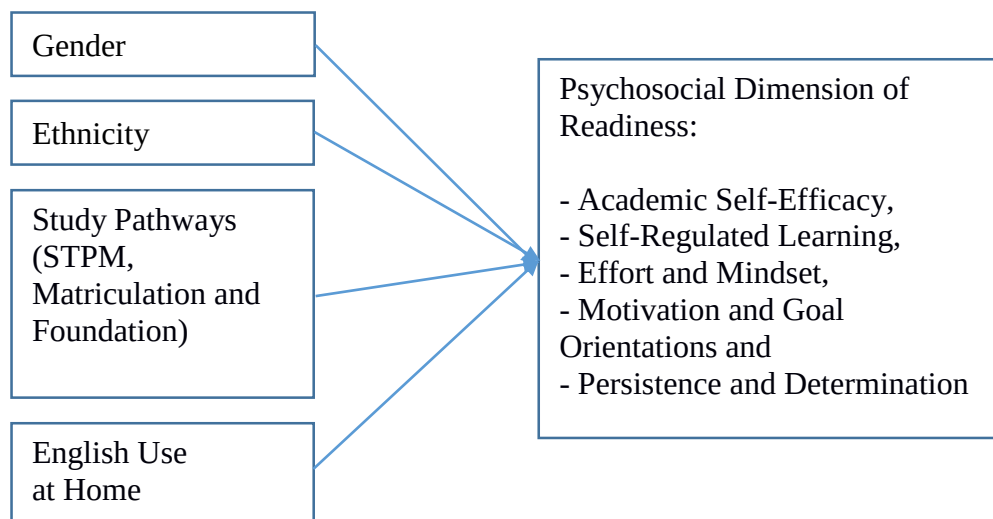


Figure 1.3: Conceptual Framework.

1.9 Significance of the Study

The aim of the study was not to replace the current predominant determinant of summative/ public assessments, but to explore other dimensions especially the various psychosocial dimensions which might contribute to student academic outcome.

a. Contribution to Knowledge

A traditional method of understanding students' readiness is based on students' academic performance. PRITES was developed to measure students' psychosocial dimensions that may influence their study performance in tertiary program in Malaysia context. Availability of PRITES would offer an avenue for higher education providers to obtain information on the level of readiness of tertiary learning among students which could be used to design appropriate interventions along with further research on personal readiness for tertiary education. For instance, PRITES results might be incorporated as guidance for designing soft skill programs that could tackle student psychosocial inadequacy and to reinforce and enhance the development of the undergraduates' cognitive, social, and intellectual capacity before they join the workforce.

b. Contribution to Education Practitioner

Findings of the study may help the educators in tertiary level to understand the issue of tertiary readiness among the students in term of psychosocial dimension. In August 2015, Education Minister Datuk Seri Idris Jusoh announced a pilot program that incorporated soft skills and Cumulative Grade Point Average (CGPA) to make up the Integrated Cumulative Grade Point Average (iCGPA). iCGPA has been designed to include some typically-neglected competencies such as "problem-solving skills and scientific thinking", "communication, leadership and teamwork" and "social skills and responsibilities". PRITES could assist in accessing students' psychosocial competencies.

c. Contribution to Methodology

This study also contributed in term of methodology by using PRITES instrument to collect readiness scale of five psychosocial dimensions. PRITES could be replicated for future studies to collect student's readiness level which provides insight for educators, researchers, policy makers to determine proper intervention for improving student readiness for tertiary learning.

1.10 Limitations of the Study

There are a several limitations to this study. First, only participants from government upper secondary schools, matriculation centres and public universities in Sabah and Sarawak took part in this study. Students studying in similar educational institutions in other states in Malaysia were not included. Also, students at private pre-universities study pathways were not considered. The results of the study, thus, might not be representative of the entire population of pre-university/post-secondary students in the country.

Second, psychosocial dimensions are some of the many contributing factors to students' tertiary education readiness. This study only focussed on selected psychosocial dimensions and did not considered other factors such as time management, external motivation, shadow schooling, family characteristics, school characteristics, team work (Liew, 2009; Arnold et al., 2012; Abdul Rahman Hamzah, Esuh Ossai-Igwe Lucky, Mohd Hasanur Raihan Joarder, 2014;) (refer Figure 2.1) which could also contribute to student's academic performance in tertiary level.

Third, this study used comparative cross-sectional survey research method, where data is gathered at a specific point in time from a pool of participants, the exposure and outcome are simultaneously assessed. Without a long-term observation, there is a lack of evidence to determine the cause and effect of a person readiness. Other methods of data collection such as interviews, observations, and longitudinal survey, which might provide input from a different perspective were excluded in this study.

1.11 Summary

This chapter discussed some related studies on tertiary learning readiness in the past decades and pointed out several aspects to consider in determining tertiary learning readiness. The needs for determining tertiary learning readiness were also discussed. In addition, numerous factors that contribute to tertiary learning readiness were also presented, including the traditional and non-cognitive determinants, psychosocial dimensions. This study looked at the psychosocial readiness for tertiary education and differences in readiness based on several demographic characteristics.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter begins with a review of literature related to the definition of tertiary (also referred to as college) education readiness. The human ecology theory of Bronfenbrenner (2005) clarifies the environmental factors influencing student readiness for tertiary education. The environmental factors are categorised into different levels in the environment including individual, microsystem, mesosystem, exosystem, macrosystem and chronosystem. Past research in the field related to gender, ethnicity, study pathway and language differences are also discussed. Local studies related to determining students' readiness for tertiary education and demographic factors that impacted on students' readiness are reviewed. Studies on other non-academic determinants for readiness in tertiary education are discussed in the last part of this chapter.

2.2 Tertiary Learning Readiness

As early as the 1990's, researchers estimated a large number of American students lacked the necessary skills and were underprepared to be successful in colleges and universities (Morrissey, 1994; Burd, 1996). One of the pioneer researches on tertiary education readiness by Conley (2005) commented that competencies at the postsecondary level may not ensure preparedness for meeting tertiary educational requirements. Adamson and Clifford (2000), Alexander et al. (2003), Todd (2001) and Zuaini et al. (2008) found that previous academic performance in pre-university/ postsecondary level is not a reliable

barometer to predict academic performance at the university. They believed that student's pre-university academic performance is not able to accurately predict his or her academic performance at the university. According to American College Testing (ACT, 2011), there were empirical and anecdotal findings indicating there was a gap between successfully completion of secondary schools and succeeding at tertiary educational institutions.

More recently, Aud et al. (2012) and the Minnesota Office of Higher Education (2010) in their studies, indicated that almost one third of secondary students did not move on to pre-university study after secondary schools, possibly indicating that they met the standards requirement for graduation but were not college-eligible or college ready. Aud et al. (2012) suggested that students who did go on to postsecondary education might not necessarily be ready to pursue further education based on the retention and graduation rates at the postsecondary education institutions. For example, it was reported that freshmen were generally weak at two essential skills at postsecondary learning, namely critical thinking and problem-solving skills (Lundell, Higbee, Hipp, & Copeland, 2004). Therefore, it was pertinent that educationists seek alternative measures for predicting success in tertiary education to ensure that secondary school students can graduate with these necessary readiness skills in addition to the prerequisite knowledge content. Students who were ready for tertiary learning success can better cope with the challenges of tertiary learning while those who were not ready would have to learn the skills required in addition to the content knowledge.

Academic achievement denotes performance outcomes that indicate the degree level to which a learner has mastered some particular knowledge and skills that were the focus of activities in instructional environments, namely in school, college and university

(Steinmayr, Meibner, Weidinger, & Wirthwein, 2014). However, there is a lack of a consistent conceptual clarity regarding what constitutes academic outcomes. Academic outcomes based solely on one predictor such as examination scores and grade points average have been consistently proven to be inferior to multiple prediction models (Zwick, 2002; Robbins, et al., 2004; Robbins, et al., 2006).

Tertiary education readiness is also termed as “college readiness” in the higher education literature of the Western context such as in the United States of America (Conley, 2007). A simple definition for college readiness would imply that students having the necessary academic content knowledge and skills to undertake college – level courses (Conley, 2007; Roderick, Nagaoka & Coca, 2009). Conley (2007) further suggests that it is necessary to have both the formal and informal, stated and unstated information, for gaining admission to, and navigating within the tertiary learning postsecondary system.

Tertiary education readiness often refers to the multidimensional set of skills, habits, traits, and knowledge that students require not merely to be eligible for admission into tertiary institutions but also to succeed without remediation in a credit-bearing tertiary course/ program that allows students to enter a career pathway (Conley, 2010). Thus, tertiary education readiness acts as a predictor of success in tertiary study (Baker, Clay, & Gratema, 2005). Students who are identified as being ready, are more likely to be successful in their university studies and are able to solve problem, work as a team, conduct research, complete tasks, and engage in challenging activities (McAlister & Mevs, 2012).

Several essential terms such as college awareness (also known as college knowledge), college eligibility (similar to academic preparedness), college preparation, and

academic tenacity have also been used to develop a working definition of the key components in tertiary education readiness (Baker et al., 2005; McAlister, & Mevs, 2012).

Tierney, Colyar, and Corwin (2003), Martinez and Klopott (2005) and Wimberly and Noeth (2005) suggested that activities which cultivate college awareness such as delivering up-to-date and useful details about going to tertiary education should start from secondary schools. These activities do not only provide the timely information about accessing tertiary education but also aims to instil beliefs and expectations regarding the benefits of going to tertiary education and being career ready.

College eligibility refers to the minimum content knowledge which is required for each tertiary study program. Students must possess sufficient content knowledge to enable them to succeed at the tertiary level. For example, in the Malaysian public university context, students who are applying for a civil engineering degree study are expected to have the minimum requirement of at least a grade C (CGPA 2.00) for physics, mathematics T and biology/chemistry/further mathematics T in their public examination (STPM/Matriculation/ Public University Foundation).

College preparation may involve some degree of psychosocial factors which may influence student's readiness. A student who is prepared for tertiary education is expected to put his/her college awareness skills, academically, emotionally and socially into action in carrying out their academic plan such as enrolling in an appropriate tertiary program and succeed in time for the required courses.

Conley (2007), on the other hand, provided a definition of college readiness that is multifaceted including: contextual skills and awareness, academic behaviours, key cognitive strategies (habits of mind), and key contents knowledge. Contextual skills and

awareness refer to students' ability to understand their role within the university and how the university system operates. This is important as students may become frustrated when they could not fulfil university's requirements such as producing a good writing and having sufficient time to study in the course (Slattery & Carlson, 2005). Contextual skills and awareness also help students to navigate through the university's system (such as credit hours, CGPA calculation, course selection, financial aid application and so forth).

Academic behaviours refer to a range of behaviours that are needed to succeed academically. Academic behaviours encompass student's self-awareness, self-control', self-monitoring and study skills. Ritchhart (2002) reported that effective learners tend to consciously evaluate, monitor, regulate and direct their own thinking. Key cognitive strategies include analytical thinking, critical thinking, inquisitiveness, problem solving, and the initiative to take advantage of a university's resources.

Key contents knowledge refers to the knowledge taught in schools such as English, mathematics, science, history and other subjects. A summative or standardised examination is usually used to measure students' knowledge content. Key cognitive strategies and other factors influencing the learning of content knowledge are discussed in the following sections.

In 2010, Conley further summarized that tertiary education readiness shall include proficiency not just in subject matter knowledge and general academic skills (reading and writing), but also cognitive skills such as communication, research interpretation, well-reasoned arguments. According to Ong (2010), Malaysian secondary schools tend to focus on memorizing facts needed to pass examinations and overlooked the importance for students to acquire cognitive skills.

Other features for measuring potential for success and thus readiness for tertiary learning are the ability to pick up the pieces after failing at tasks the first time, openness to trying new things, able to accept constructive feedback from others and willing to adjust accordingly to needs of the current situation (Wiley, Wyatt & Camara, 2011). Nonetheless, Heller, (2012) noted that it is difficult to have a definite definition of student “readiness” for tertiary education.

2.3 Theoretical Framework - Human Ecology Theory

There are many factors which can cause a student to succeed or fail in their tertiary study. The human ecology theory of Bronfenbrenner (2005) provides an integrative framework that proposes a new way of understanding tertiary education readiness. The theory clarifies the environmental factors influencing student readiness for tertiary education. These environmental factors include the forces of culture and ideology, social and organizational structure, time, and individual. Arnold et al. (2012) added on to Bronfenbrenner’s theory, suggesting additional environmental factors affecting students’ academic performance such as biological, cognitive, emotional, and behavioural factors that shape students’ characteristics and eventually contribute to their development of readiness for tertiary education. From a broader view, the sociohistorical context of a society, financial aid and political realities such as budget for public higher education, are part of the students’ non-immediate settings that play a role in societal educational outcomes.

From an individual point of view, direct interactions between a learner with their immediate settings such as people, objects and events surrounding them may deepen or

diminish their learning progress (Padilla, 2009; Kimura-Walsh, Yamamura, Griffin, & Allen, 2009). Headmaster, teachers, classmates, friends, families, school's facilities and curriculum and co-curriculum programs are part of these immediate settings.

A student's individual behavioural, biological, cognitive, and emotional characteristics may play a role in shaping their experience, thus, indirectly instigate the course of development (Robbins et al. 2004; Rueda, 2005; Bronfenbrenner & Morris, 2006; Arnold et al. 2012). These attributes are referred to as "instigative characteristics" and are "attributes of a person most likely to shape his or her course of development" (Bronfenbrenner, 1993, p. 11). Figure 2.1 shows the major environments factors in ecological theory which were mapped onto the corresponding levels of the environment.

Most environmental factors affect students' development reciprocally, whereby a person develops by acting on the context as well as being acted on by the environment. As each student varies in personal background and past experiences, everyone tends to have different degree of influence, being shaped and being acted on by their environment and they would choose and respond and acted on differently in a given same learning environment. These experiences were eventually built into student's personality and characteristics (Bronfenbrenner, 2005).

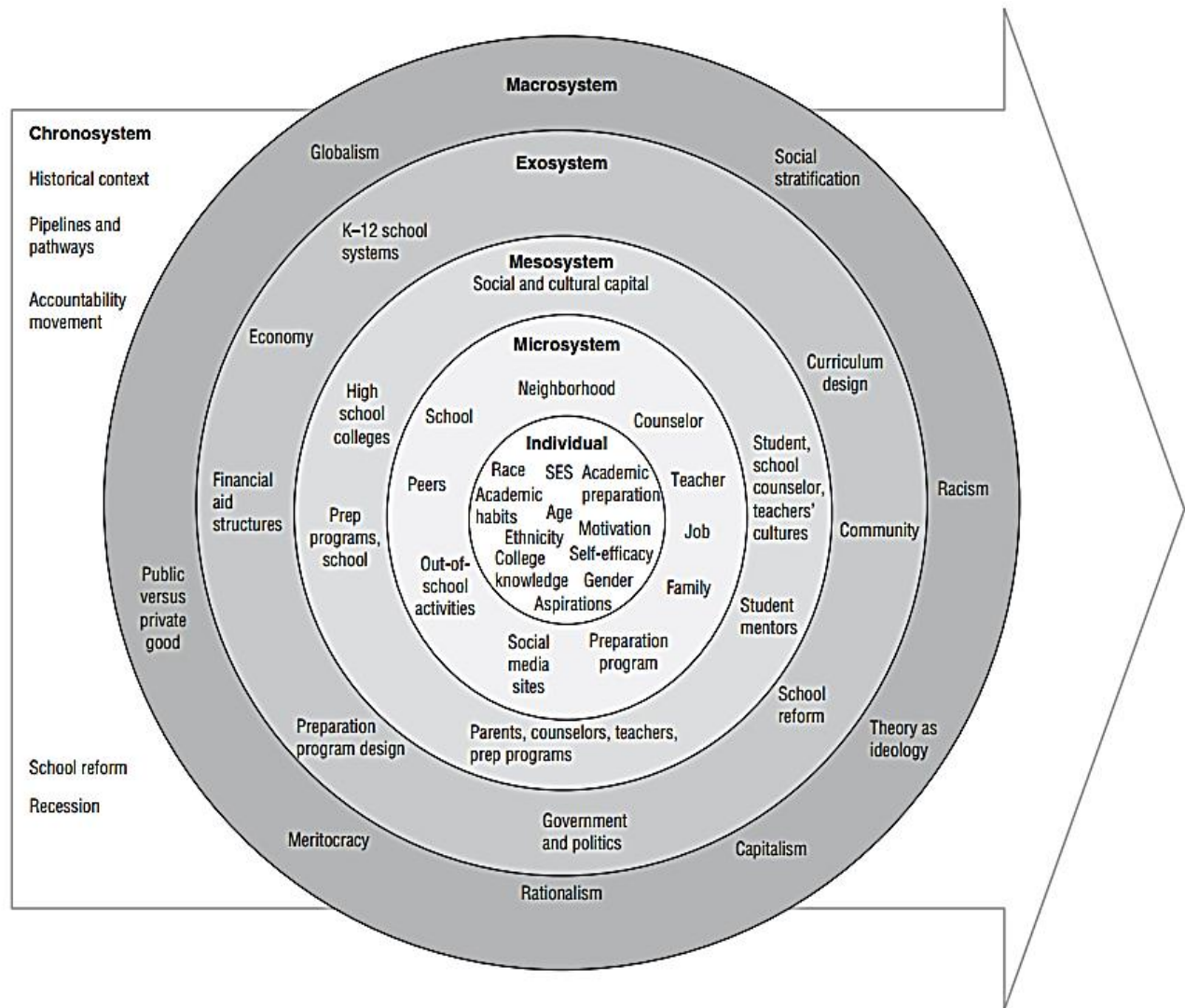


Figure 2.1: Major components of the ecological theory. Sources: Arnold et al. (2012).

To deal with the complexities of the mutual influences between the environment and students on college readiness, Arnold et al. (2012) suggest an ecological framework as the focal concern of the field of college readiness. The reciprocal interactions between different levels of the environment are as shown in Figure 1.2. These reciprocal interactions have been a classic system problem for unequal access of student into a tertiary education. For instance, there were unequal distributions of opportunities in high schools' courses among the neighbourhood from different socioeconomic status (Hallett &

Venegas, 2011). Broad societal views of national sovereignty and national identity affect the experiences and opportunities of immigrants (Portes, 1999).

Structural arrangements of society including residential segregation by ethnicity, race, and family income affect the academic achievement of a student (Reardon, 2011). Some arrangements of the society that are outside the immediate life of a student such as cultural values and beliefs will affect students' lives and eventually their academic performance (Pike & Kuh, 2005). For instance, a family with a second generation of tertiary education goer tend to understand the importance of higher-level education better because the first generation of the family has gone through the process in tertiary education. The first generation of the family (probably the parents) may share their experiences with the second generation and guide them through the learning process. The guidance may not be in terms of specific discipline of study, but professional mentoring, financial aid, mental readiness and academic resources (Santilli, 2015). In contrast, a family in a rural area with no tertiary education goer may encourage their children to equip themselves with cultivating and fishing skills instead of reading and writing skills.

This study focused mainly on the centre of the chronosystem, which is the "individual" section. In the theory of ecology of college readiness, individuals develop their readiness through two-way interactions with their environments. Moreover, individuals are different in their ways of choosing, experiencing and instigating responses from their environments. These variances can affect the course and outcome of subsequent development (Bronfenbrenner, 2005). In these reciprocal interactions, individuals are products and producers of their environments. For instance, having high academic

aspirations may result from nursing parents and zealous teachers while also steering individuals' decision making that could affect their following learning experiences.

Some researchers have identified a list of developmentally instigative characteristics (some may mix it with psychosocial factors) that constitute college readiness which include college knowledge, motivation, self-efficacy, study-skills, academic preparedness and aspiration (Cabrera & La Nasa, 2000; Perna, 2005; Rueda, 2005). Researchers continue to explore how these characteristics synergistically influence individuals' readiness. Figure 2.2 shows five key elements of college readiness that are important for academic preparation.

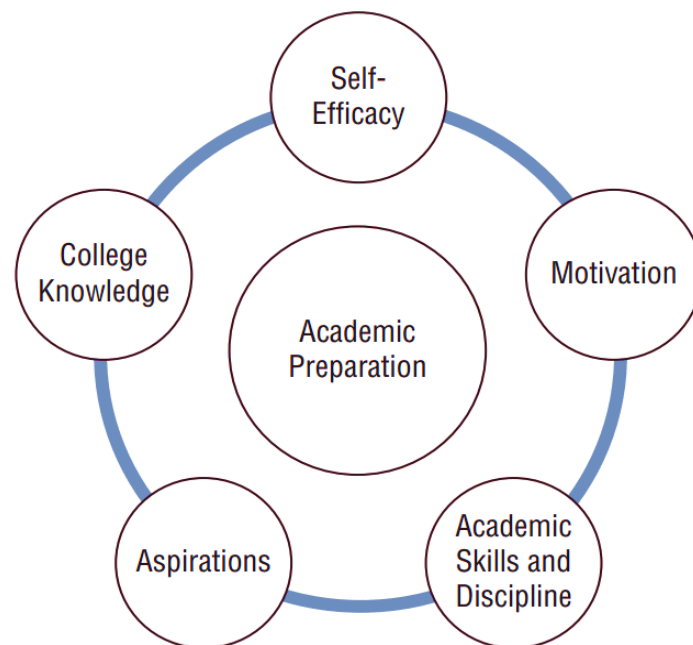


Figure 2.2 Key elements of college readiness. Sources: Conley (2010); Mattern and Shaw (2010); Perna (2005); Robbins et al. (2004, 2006); Rueda (2005).

In 2004, Robbins and colleagues investigated the relationship among college performance and academic, status and psychosocial variables. A meta-analysis of 109

studies have been carried out to examine the relationships between the variables high school GPA, ACT/SAT scores, socio-economic status (SES), psychosocial factors, results of freshman GPA and retention rates. A wide range of psychosocial factors have been included in this study, such as academic self-efficacy, academic goals, achievement motivation, academic-related skills, contextual influences, general self-concept, institutional commitment, perceived social support, and social involvement. They examined the contributions of the psychosocial dimensions listed and the traditional determinants such as high school GPA, and ACT/SAT.

The findings showed that all psychosocial factors (Academic goals $\beta = .174$, institutional commitment $\beta = .205$, social support $\beta = .182$, social involvement $\beta = .134$, academic self-efficacy $\beta = .146$, and academic-related skills $\beta = .264$) can predict retention rate and control for socioeconomic status as good as if not better than the traditional determinants.

When combining the traditional determinants with psychosocial factors in a regression model, variances in retention accounted for up to 17.1%, whereas when considering solely on traditional determinants or psychosocial factors alone, variances in retention only accounted for 9.1% and 13.2% respectively. These results highlighted the need for educators to re-evaluate the current system of interpreting student readiness for tertiary education.

2.4 Psychosocial factors influencing Readiness for Tertiary Education

Pohl (2012) found five psychosocial factors that would influence student's readiness for tertiary education. These include Academic Self-Efficacy, Self-Regulated Learning, Effort and Mindset, Motivation and Goal Orientations and Persistence and Determination.

2.4.1 Academic Self-Efficacy (ASE)

ASE refers to ones' belief about his or her academic capability and ability for success in the academic environment (Bandura, 1986, 1997). In 2006, Rahil and colleagues investigated how the level of self-efficacy could affect one's learning process. They conducted a research among a group of form four students at eight secondary schools in Selangor. The study showed positive correlations between academic achievement efficacy with academic performance in English language. Students with high self-efficacy tend to score better in English language. They identified several reasons causing low self-efficacy, including poor facilities for English teaching in rural area, language spoken at home, and attention/motivation from the teachers. A substantial number (48.9%) of form four students tend to have lower self-efficacy due to a lack of attention from the teachers (Rahil et al, 2006). The findings further affirmed that learners' self-efficacy correlated with academic outcomes. Students with low self-efficacy tended to have poorer result as compared to those with high efficacy.

2.4.2 Self-Regulation Learning Strategies (SRL)

Different theorists may have different views on the definition of self-regulation strategies used in the learning process. However, most of the theorists agreed that students that possess high level of self-regulation are likely to spend more effort, time and strategies to attain a better result (Pintrich, 2004; Zimmerman, 1990). Self-regulated learners have the awareness of whether they have the knowledge and skills needed. They proactively seek for information which is important to them and try their best to master it.

In one of the earliest studies on self-regulation, Zimmerman and Schunk (1989) defined self-regulated learning in terms of feelings, self-generated thoughts, and actions, which are systematically directed towards accomplishment of one's learning goals. Winne (1995) described self-regulated learning as a self-directed and inherently constructive process. Later in 1999, Monique stated that "Self-regulation means being able to develop knowledge, skills, and attitudes which can be transferred from one learning context to another and from learning situations in which this information has been acquired to a leisure and work context (p. 445)."

In the study conducted by Virtanen and Nevgi (2010) among 1248 students in eight Finnish universities, self-regulation learning strategies was divided into five sub-dimensions, namely, help-seeking strategies, persistency, self-assessment, self-management and time management. Female students are more ready in term of help-seeking strategies. There are no significant differences between gender in term of other sub- dimensions.

Shayesteh Hashemyolia, Azizan Asmuni, Ahmad Fauzi Mohd Ayub, Shaffe Mohd Daud and Jasmin Arif Shah (2015) conducted a study among 436 undergraduate students who have registered in learning management system courses in 6 faculties at university Putra Malaysia (UPM). They found a moderate readiness of Self-Regulation Learning Strategies among the undergraduate students.

2.4.3 Effort and Mindset (EM)

Effort refers to a determined attempt (Oxford Dictionary, 2017). Students mind set refers to how they see success and failure, and the amount of effort they spent on homework. Dweck & Leggett (1988) found that the belief of ability can be developed through one's effort, orients those endorsing a more incremental theory towards challenging tasks that promote skill acquisition and using effort to overcome difficulties. Effort and mindset are closely associated to self-efficacy, students with better self-efficacy are more likely to strive harder to attain their objectives (Law & Norlizabeth Che Hassan, 2015). Student's self-efficacy may motivate them in maintaining their effort throughout the learning process.

2.4.4 Motivation and Goal Orientations (MGO)

Motivation is found to have a pivotal impact on students' academic outcomes (Zimmerman, 2008). Intrinsic motivation and volition guide the level of effort and persistence used in completing the assignment and use of other self-regulation learning strategies. Student self-regulated learning strategies is much easier to achieve when they are motivated (Zumbrunn, Tadlock, Roberts, 2011). When students are motivated to learn,

they are more likely to invest the necessary time and energy needed to learn and apply appropriate self-regulation learning skills, and when students are able to successfully employ self-regulation learning strategies, they are often more motivated to complete learning tasks (Zimmerman, 2000).

Goal orientation is one of the key sources of motivation that activate students' motive to learn and sustain students' learning processes (Zimmerman, 2008). There are two categories of goal orientations: mastery (task-involved) goals and performance (ego-involved) goals. Task-involved goals, children choose challenging tasks and are concerned with their personal progress than with outperforming others, while with ego-involved goals, children try to outdo their friends, and are more likely to do tasks they think they are capable to do.

2.4.5 Persistence

Persistence refers to students' ability to keep up with their effort and continuing in engaging with goal-directed behaviour even when there are obstacles. A wide body of literature on students' persistence in tertiary education suggests that there are multiple barriers to degree completion, particularly for those students from disadvantaged backgrounds. Barriers such as poor academic preparation for tertiary education, lack of family support, inadequate finances, a weak commitment to degree completion or to a particular institution, feelings of isolation and "poor fit," lack of role models, competing personal and family obligations, and poor academic performance individually or collectively influence a student's decision to leave an institution before gaining a degree (Titus, 2006; Walpole, 2007). To attempt to mitigate these factors, monetary or human

resource interventions (such as institutional organizational structures or institutional financing) have been created to increase student persistence at tertiary institutions.

2.5 Demographic Characteristics influencing Tertiary Education Readiness

Kaighobadi and Allen (2008) in their study found that variables such as gender, age, ethnicity and previous academic performance can also be traits that are influential to academic success. They reported a significant correlation between academic performance and the demographics background of business study students. Besides investigating the influences caused by the psychosocial factors, researchers were also interested with the differences of academic performance between student from different demographics background (Khadijah AlHaddad, Mohamed & Musa AlHabshi, 2004; Hazilah Mohd Amin, Siti Aishah Hanawi, Hazura Mohamed, Saidah Saad, Noraidah Sahari & Ibrahim Mohamed, 2013; Nurhazlini et al., 2015; Veloo, Hong & Lee, 2015).

“Demographics characteristics” such as gender and ethnicity are often used to categorise students into groups. These characteristics which are described as part of the components under different levels of the environment in the chronosystem were also explained in the human ecology theory (Figure 2.1). Although these characteristics do not directly determine student’s future, they could serve as “sources of variation in the person’s susceptibility to the developmental effects of environmental conditions and of enduring patterns of interaction in the person and his or her immediate environment” (Bronfenbrenner, 1995, p. 633). Student with different demographic characteristics may vary in their ways of experiencing, selecting and instigating responses from their

environments. These differences are “most powerful in affecting the course and outcome of subsequent development” (Bronfenbrenner, 2005, p. 94).

2.5.1 Gender differences

Gender was classified as characteristics under “individual” factor (refer to Figure 2.1). Nadia et al. (2010) stated that wide discrepancy in the enrolment of males and females has been a universal problem in many higher education institutions around the world. It has been a norm in the past decade with more female student enrolled, studied and graduated from Malaysia public universities. Table 2.1 represents a summary of findings done in October 2014 by Malaysian Ministry of Education (2015), showing male versus female students by fields of study in Malaysian public universities. Generally, there were more female students across every field except Engineering, Manufacturing and Construction.

Table 2.1: Summary of Entrants, Enrolment, and Graduate based on gender.

Fields of Study	Entrants			Enrolment			Graduate		
	M	F	T	M	F	T	M	F	T
1 Education	2,856	7,515	10,371	15,137	36,915	52,052	2,037	5,216	7,253
2 Arts and Humanities	6,008	11,144	17,152	20,025	35,259	55,284	3,627	6,449	10,076
3 Social Sciences, Business and Law	19,632	43,964	63,596	68,041	143,373	211,414	14,264	34,148	48,412
4 Science, Mathematics and Computer	10,746	20,971	31,717	33,455	59,492	92,947	6,001	11,582	17,583
5 Engineering, Manufacturing and Construction	20,914	17,582	38,496	74,375	58,419	132,94	15,424	12,161	27,585
6 Agriculture and Veterinary	2,265	3,114	5,379	6,576	8,550	15,126	1,413	1,883	3,296
7 Health and Welfare	2,343	6,598	8,941	9,984	25,965	35,949	1,873	5,011	6,884
8 Services	2,984	4,086	7,070	8,615	13,186	21,801	1,959	2,937	4,896
9 General Programmes	260	526	786	94	156	250	27	26	53
TOTAL	68,008	115,500	183,508	236,302	381,315	617,617	46,625	79,413	126,038

Source: Ministry of Higher Education (2015, p.33)

The discrepancy in gender enrolment occurs even prior to tertiary education. The number of female students has consistently exceeded male students at Matriculation centres conducted by the Malaysian Ministry of Education over the past 7 years. Furthermore, the percentage of female students grew steadily from 66.3% in 2008 to 71.21% in 2014 (Table 2.2).

Table 2.2: Total enrolment and percentage of female students in Matriculation.

	2008	2009	2010	2011	2012	2013	2014
Total Enrolment	23,340	18,850	22,375	21,473	22,540	24,249	26,262
% Female	66.3	68.0	69.1	68.0	70.0	71.0	71.21

Source: Matriculation Division, MOE (2015).

Some of the findings indicated that there was a difference in learning readiness level between genders in term of their learning style. Latifah Ismail (2014) reported that female students were different from their male counterparts in terms of learning attitude, effort or mindset and inspiration vision. Female students tend to work harder, are more dedicated, and more determined in their study. Such characteristics lead to different educational outcomes throughout primary, secondary and tertiary education where girls scored better grades than boys in many subjects (Duckworth, & Seligman, 2006) and may have contributed to the imbalance of ratio between female and male students in tertiary education institutions (Ministry of Higher Education, 2014, 2015).

In contrast, there were studies which found that male students obtained significantly higher achievement compared to female, particularly in chemistry (Obrentz, 2012; Tenaw, 2013). A similar result in chemistry was reported in a recent study carried out among matriculation students in Malaysia by Veloo, Hong and Lee (2015). When come to science related subjects, a meta-analysis of gender differences conducted by Amelink (2009) found increasing science proficiency between 8th to 12th grades (equivalent to Form 1 to Form 5 in secondary school in the Malaysian education system) among American male students as compared with American female students. These literature reviews for gender differences in tertiary academic achievement and learning attitudes showed an inconclusive result, as such this study aimed to look at gender difference in term of students' level of psychosocial readiness for tertiary learning (second research objective), a component of tertiary learning readiness that has not been widely investigated in Malaysia.

2.5.2 Ethnicity differences

The literatures showed mixed results as to how ethnicity influences one's academic performance. This may be due to the different understandings of the term "ethnicity". As discussed in the book *A Wider Lens on the Black-White Achievement Gap*, Americans believe that ethnicity by themselves do not influence learners' academic performance. In the same book, Rothstein (2004) stated that socio-economic status and colour of skin should not affect how well a person learns. "If teachers know how to teach reading ... and if schools emphasize the importance of these tasks and permit no distractions, children should be able to learn these subjects, whatever their family income or skin colour," (Rothstein, 2004, p. 106).

Rothstein perceives income and skin colour as the two social-class characteristics that influence learning in school. “For it is true that low income and skin colour themselves don’t influence academic achievement, but the collection of characteristics that define social-class differences inevitably influences that achievement.” (Rothstein, 2004, p. 106).

Howard (2010) further clarified the definition of terms with clear distinction. He pointed out that “ethnicity” and “race” as two misunderstood concepts frequently associated to “culture”. “Ethnicity” is used to refer to a group’s ancestral homeland or a place of origin. “Race” tends to be defined as a social construct based on phenotype. Conversely, culture is shaped by a myriad of factors such as generation, gender, social class, family history, language, religions. It is not exclusively bound to one’s ethnicity, race or place of origin (Howard, 2010).

Some studies have suggested that “culture-ethnicity-learning” link is an effective mean for enhancing learner performance, especially for learners from culturally diverse backgrounds (Boykin, 1994; Hickson, Land, & Aikman, 1994; LaPoint, Ellison & Boykin, 2006). They suggested that learner in the same culture tend to share common learning style and traits. Thus, teaching styles that are congruent should be constructed.

Hickson et al. (1994) set up a study to investigate learning style among different groups of students including the White, African-American, Hispanic and Asian. The instrument “Learning Styles Inventory (LSI: Dunn et al., 1984)” was used to define learning style in terms of four universal learning conditions (environmental, emotional, sociological and physiological) and 22 elements. Results showed a total of 12 characteristics (variables) significantly discriminated between the four groups with respect to their learning style preferences. For instance, the Hispanic students preferred to think in

a more formal setting (design variables). The African-American and Hispanic students preferred to use food and beverage while learning (intake variables). Asian and Hispanic students learn best in the late morning (late morning variables).

Collection of these characteristics (variables) that define learning style preference differences in different ethnic groups may leverage students' academic performance (Neito, 2010; Jiménez-Camargo, 2011). Studies have been carried out to understand how different child-rearing patterns in different ethnic groups affect academics performance. For example, Davis-Kean and Sexton (2009) suggested that parents from a culture that emphasized on the importance of education positively impacted on the academic performance of their kids.

A few Malaysian studies (Ervina Alfian & Md Nor Othman, 2005; Liew, 2009; Norsida binti Hasan, Mohd Bakri bin Adam, Norwati binti Mustapha & Habshah binti Midi, 2010) have shown that there were differences in academic performance based on ethnicity. Ervina Alfian and Md Nor Othman (2005) investigated undergraduate students' performance in the Faculty of Business and Accountancy, University of Malaya. They found that Chinese students in business courses and accounting courses performed better than Malay and Indian students. A statistical analysis from 1997 to 2006 by Norsida binti Hasan et al. 2010 has shown that race was an important factor in explaining differences in student achievement at the tertiary level.

Liew's (2009) study sought to investigate differences in cultural and structural perspectives between Malay and non-Malay students on their mathematics and science achievements. This study included 5,579 eighth grade students and 150 schools in Peninsular Malaysia. By using multilevel modelling analyses controlling for students'

background such as ethnicity, family composition and structure, family socioeconomic status, gender et cetera. Liew (2009) found that the non-Malay performed better academically in mathematics. The literature reviews showed that there is a relationship between ethnicity and academic performance, however, these studies were conducted more toward cultural and structural perspectives. Thus, this study aimed to look at ethnicity difference in term of students' level of psychosocial readiness for tertiary learning perspectives as stated in the third research objective.

2.6 Study Pathways (Entry Qualification)

Study pathways (STPM, Matriculation and Public University foundation) encompassed a larger scope than any individual characteristics (refers Figure 2.1). It involves program design (policymaking setting), people (counsellors, parents, teachers), place (institution, school), government and the relationship in between. Thus, it is difficult to categorised “study pathway” under a specific level of environment based on the ecological theory. Rather, it is overlapping within microsystem (immediate setting), mesosystem (network of intersecting relationships) and exosystem (organizations and structures beyond an individual's immediate setting).

The Malaysian education system (refer to Appendix B) involves 14 to 16 years of study including pre-school (1 year), primary education (6 years), secondary education (5 – 6 years, including transition class) and pre-university study (1 – 2 years) to prepare a student academically for university studies. Different focuses are given in each level of education by a planned curriculum. Students are required to sit for a number of centralised

public examinations conducted by the Ministry of Education (or other educational institutions at the pre-university level, refer to Table 2.3).

Table 2.3: Centralised public examinations at different education level.

Education level	Age group	Public Examination
Preschool	5 – 6	-
Primary	7 – 12	UPSR
Lower Secondary	13 – 15	PT3
Upper Secondary	16 – 17	SPM
Pre-University	18 – 19	STPM/ Matriculation/ Foundation

Note:

- i) UPSR refers to *Ujian Pencapaian Sekolah Rendah* (Primary School Achievement Test)
- ii) PT3 refers to *Pentaksiran Tingkatan Tiga* (Form Three Assessment)
- iii) SPM refers to *Sijil Pelajaran Malaysia* (Malaysian Certificate of Education)
- iv) STPM refers to *Sijil Tinggi Persekolahan Malaysia* (Malaysian Higher School Certificate)

Pre-school education (nursery and kindergarten) is part of the National Education System under the Education Act of 1996 which aims to provide a firm foundation before the children enter primary school. Primary education is free and compulsory under the Education Amendment Act of 2002. It is divided into two three-year phases (i.e. Year 1 – 3 and Year 4 – 6).

Secondary education is also divided into two phases namely lower secondary (Form 1 – 3) and upper secondary (Form 4 – 5). Beginning from 2014, the Lower Secondary Assessment (PMR) – a centralised summative assessment was replaced by PT3 system (*Pentaksiran Tingkatan 3*), a school-based assessment. At the end of secondary education, students are required to sit for the public examination known as the Malaysian Certificate of Education (*Sijil Pelajaran Malaysia*, SPM).

The Malaysian education system is similar to most Asian countries (Gang 1996; Choi 1999; Lim & Tan 1999) and focuses on public examination results as important indicators of students' ability to progress to higher levels of education or occupational opportunities (Chiam 1984). Producing top academic students with distinguished results has been traditionally emphasised by most Malaysian schools. Schooling is primarily seen as a passport to employment and university certificates as entry requirement for prestigious jobs (Marimuthu, Mukherjee, & Jasbir, 1984). The examination-oriented education system also influenced teaching and learning in schools. It encourages pedagogical practices that lean towards preparing students for examination to accomplish academic achievements rather than foster meaningful learning (Marimuthu et al., 1984; Ong, 2010). Thus, students, teachers and parents are more concerned with performing well in public examinations, as they are seen as the only criteria for entry into professional and prestigious programs in tertiary education (such as medicine, dentistry, engineering, lawyer and so forth) and subsequently in the job market.

Government supported public universities are the first choice for tertiary education among Malaysian students although private tertiary institutions are also gaining popularity. After a student completed his or her SPM examination, there are generally six study

pathways towards tertiary education (refer Appendix B) namely, the Sixth form (STPM), Ministry of Education's (MOE) matriculation program, pre-university or foundation programs at public or private institutions/ universities, certificate/ diploma/ advanced diploma at public polytechnics and community colleges or private institutions and *Sijil Kemahiran Malaysia (SKM)/ Diploma Kemahiran Malaysia (DKM)/ Diploma Lanjutan Kemahiran Malaysia (DLKM)* at public skill training institutes (PEMANDU-PADU TVET Lab, 2014).

Public universities intake in Malaysia is administrated by the Central Admission Unit (*Unit Pusat Universiti, UPU*), also known as Student Intake Management Division (*Bahagian Pengurusan Kemasukan Pelajar IPT – BPKP IPT*). Universities are required to admit students who are assigned by BPKP IPT under the Ministry of Higher Education to their respective arranged courses. Applicants are required to meet the minimum academic requirements set by the BKPT IPT as follows:

- i) Passed the Malaysian Certificate of Education (SPM) or equivalent with credit in Malay Language.
- ii) Or Passed Higher School Certificate (STPM) or equivalent with CGPA not lower than 2.00 and a Grade C for General Study and two other subjects.
- iii) Or Passed the Matriculation or Public University Foundation (Asasi) examination with CGPA not lower than 2.00.
- iv) Passed the Malaysian University English Test (MUET) with Band 1 and above.

2.6.1 Sixth Form

Generally, when secondary students completed his or her SPM and satisfied the required criteria he/she is eligible for free Sixth Form education. It is a three-semester's programme with a study period of 18 months. At the end of the study, students will sit for a public examination (STPM). The longer study duration allows students more time to discover their true interest before enrolling in a specialised course.

With the rebranding of STPM in 2012, a new modular system was introduced. Continuous assessments are now conducted throughout the study programme instead of an end of program examination leading to the Malaysian Higher Certificate of Education (Majlis Peperiksaan Malaysia, 2011). Students are evaluated at the end of each semester which includes summative assessment, coursework and school-based projects. This approach was implemented to align the sixth form assessment and prepare students for assessment modes used at the tertiary level. Enrolment of upper six students from 2013 to 2015 is shown in Table 2.4 (Malaysian Ministry of Education, 2016). The enrolment significantly dropped about 24% from 2013 to 2014, while a slight increase of 0.89% from 2014 to 2015.

Table 2.4: Upper Six enrolment (combining student from science stream and art stream).

Year	2013	2014	2015
Number of students	57,798	43,789	44,179

Source: Malaysian Ministry of Education, 2016

2.6.2 MOE Matriculation

Besides Sixth Form, SPM graduates who are looking to further their study in local public university may apply for the Malaysian Matriculation program (also known as *Matrikulasi*). The program was established on the 1st of September 1998 by the Ministry of Education in order to standardize the various matriculation programs offered by the respective public universities. The matriculation program is an one to two years public pre-university programme, and upon successful completion, students may further their study in public universities. Three study programs offered are science, accounting, and technical stream, based on their academic results in SPM (EduAdvisor, 2015). Technical stream is usually reserved for students from technical secondary schools. Table 2.5 showed that the number of students studying in matriculation program increases steadily from 2013 to 2015.

Table 2.5: Matriculation enrolment.

Year	2013	2014	2015
Number of students	22,540	24,249	26,262

Source: Malaysian Ministry of Education, 2016

2.6.3 Public University Foundation Program (*Asasi*)

Currently, nine out of the 21 public universities in Malaysia offers pre-university foundation programs (*Asasi*) for SPM graduates, namely Universiti Teknologi MARA (UiTM), Universiti Malaysia Sabah (UMS), Universiti Malaya (UM), Universiti Putra Malaysia (UPM), Universiti Sains Islam Malaysia (USIM), Universiti Malaysia Sarawak (UNIMAS), Universiti Kebangsaan Malaysia (UKM), Universiti Islam Antarabangsa Malaysia (UIAM) and Universiti Pertahanan Nasional Malaysia (UPNM) (Mustaffa Abdullah, 2014; 2016).

There are two types of *Asasi* programs, “Opened” and “Closed” (Afterschool.my. 2017; Mustaffa Abdullah, 2017). The “Opened” *Asasi* program is offered by UM, UiTM and UKM and is a recognised entry qualification for degree study at other public universities. On the other hand, for the “closed” *Asasi program* offered by UNIMAS, UIAM, UPM, UPNM UMS and USIM, students generally continue their degree study in their respective university.

Table 2.6 compared the three of the main study pathways in Malaysia in term of their semester, availability, total number of students, students’ ethnicities and recognition for further study. The matriculation and Sixth Form use the same academic syllabus. However, the Sixth Form study is slightly more in-depth and detailed than the matriculation program as they have a longer study period (3 semesters). Furthermore, most of the STPM students are non-bumiputeras while most of the Matriculation students are Bumiputeras (Hazilah Mohd Amin, Siti Aishah Hanawi, Hazura Mohamed, Saidah Saad, Noraidah Sahari & Ibrahim Mohamed, 2013).

Table 2.6: Major study paths recognised by Malaysia public university.

	STPM	Matriculation	<i>Asasi</i>
Study terms	3 semesters	2-4 semesters	2-4 semesters
Availability	At selected secondary schools	19 matriculation centres	9 public universities
Amount of Student	~ 48,500	~ 24,300	-
Ethnicity group	Mostly non-bumiputeras	Mostly <i>Bumiputera</i>	Mostly <i>Bumiputera</i>
Recognition, further degree study	All public university in Malaysia, Commonwealth nations	All public university in Malaysia, Commonwealth nations	“Opened” <i>Asasi</i> has wider choices

The ecology of tertiary education has gradually changed in the past decade especially in terms of widening accessibility to tertiary education resulting in a diversified student population. Hence, traditional approaches using results from summative or standardised examinations as determinants to measure readiness for tertiary education may be inadequate (Mattern et al., 2014). Summative and standardised assessment tend to focus more on measuring the eligibility of a student to enter tertiary education (Ong, 2010), rather than ensuring they are ready to succeed in the programs study (Baker et al., 2005; Arnold et al. 2012).

Some studies sought to understand how study pathways could influence student academic performance (Norsida binti Hasan et al., 2010; Hafizah et al., 2011; Hazilah Mohd Amin et al., 2013). A study conducted by Hafizah et al. (2011) at the Department of

Electrical, Electronic and System Engineering, Universiti Kebangsaan Malaysia, found that the students current CGPA in the university are independent of their entrance CGPA.

Hazilah Mohd Amin et al. (2013) investigated further to show how students from different study pathways performed while at the Faculty of Information Science and Technology, UKM (*Universiti Kebangsaan Malaysia*). 144 Students in the 1st year through 3rd year, who are from the 2011/2012 sessions, with different study pathways were further divided based on their previous CGPA. Their findings showed that students with STPM qualification were able to increase their CGPA after they entered into tertiary education despite their previous CGPA results (refer to Table 2.7). Students with low achievement in STPM were capable to compete with high-achieving students in their tertiary study. In examining graduates from matriculation (refer to Table 2.8), the findings indicated that students with low achievement (2.00 – 2.49) in matriculation were capable to competing with students who did better previously (2.50 – 2.99). However, matriculation graduates with CGPA between 2.50 – 2.99, 3.00 – 3.49 and 3.50 – 4.00 were only able to maintain their CGPA performance.

Table 2.7: Comparison of Faculty of Information Science and Technology mean CGPA based on STPM CGPA.

STPM CGPA	N	Mean of current CGPA	Standard deviation	Minimum	Maximum
2.00 – 2.49	7	3.29	.27287	2.80	3.65
2.50 – 2.99	29	3.45	.21231	2.91	3.80
3.00 – 3.49	6	3.51	.16558	3.25	3.73
Total	42	3.43	.221776	2.80	3.80

Table 2.8: Comparison of Faculty of Information Science and Technology mean CGPA based on matriculation CGPA.

Matriculation CGPA	N	Mean of current CGPA	Standard deviation	Minimum	Maximum
2.00 – 2.49	22	2.91	.31573	2.23	3.47
2.50 – 2.99	29	3.00	.38145	2.10	3.67
3.00 – 3.49	17	3.31	.23993	2.85	3.69
3.50 – 4.00	2	3.57	.26870	3.38	3.73
Total	70	3.07	.36746	2.10	3.76

Studies mentioned above were conducted in Peninsular Malaysia and focussed on academic achievement. Not much researches have been done for study pathways differences and psychosocial readiness among students in pre-university learning institutions in Sabah and Sarawak. As such, a fourth research objective was proposed for this study to investigate ethnicity difference in students' level of psychosocial readiness for tertiary learning. This study focused only on the mainstream study pathways, which includes Sixth Form, MOE Matriculation and Public University Foundation, leading towards a recognised entry qualification to Malaysian public universities. As such discussions on study pathways towards public tertiary education such as religious education (*Sijil Tinggi Agama Malaysia*, STAM) and diploma/ certificates programs were excluded. Similarly, discussions on study pathways for private tertiary education are not discussed.

2.7 Language Use at Home

English language has long been recognized as an international language. Science and technology knowledge have mainly been developed, shared and delivered using the English language. To ensure access to information in a wide range of fields, competency in and the importance of English has been a priority for the Malaysian Ministry of Education. English language is conducted as a compulsory second language in all national schools in Malaysia as a preparation for tertiary education where most of the higher education institutions use English as the medium of instruction (Saadiyah & Kaladevi, 2009).

As university lectures were mostly conducted in English, students who were good in English were expected to perform better in comprehending the lecturer instructions, understanding reference textbooks and completing assignments in English. Thus, many studies have been carried out to investigate the correlation between the students' English ability and their overall academic performance.

Bandura (1997) stated that human attainment depends on the interactions between one's behaviours, environmental conditions and personal factors. One's early experiences at home may largely affect an individual behaviour in the process of growing up. The home environment that stimulates curiosity will help build self-efficacy just as displaying more of that curiosity and exploring activities would invite active and positive reciprocity. Mann, Canny, Lindley and Rajan (2010) carried out a research among the medical students and found that the language a person used at home with their parents played a role in his or her academic performance. Since English is the dominant language of instruction in tertiary education, a lack of proficiency in English is often thought to be a major contributing factor to poor academic performance.

Some researchers supported the idea that academic language is one of the most crucial factors in influencing students' academic achievement. Francis et al. (2006) pointed out that academic language skills is a key to success, especially to the group of English language learners (ELLs). ELLs lagged behind when compared with native English-speaking learner, who were exposed to English longer and does not need support for second language development. The length of exposure to English, and accessibility to effective instruction which support second language development are two of the factors influencing ELLs' academic outcomes.

Previous researches done in Malaysia found mixed results in term of the relationship between language proficiency and academic performance. While some researchers found that English language proficiency will have an impact on learners overall academic performance (Khadijah et al., 2004; Arshad et al., 2008; Nurhazlini et al., 2015), other researchers found that English ability has no direct or little effects on the overall academic performance (Arsad, Bauniyamin & Manan, 2014).

Khadijah AlHaddad et al. (2004) carried out a study among non-native speakers of English Language students who studied in a Bachelor of Accountancy (Hons) program at the Faculty of Business in Universiti Teknologi MARA (UiTM). Out of the 491 student who graduated in 1998, there was a significant positive correlation between GPAs of English language achievement and other subjects studied in the Bachelor of Accountancy program.

However, another research by Arsad et al. (2014) investigated the impact of student's English capability on overall engineering academic performance in the Faculty of Electrical Engineering in the same university, reported that English language capability

had little impact on students' final CGPA. Based on the findings of the past studies, a fifth research objective was proposed - To investigate the difference of psychosocial readiness of students for tertiary learning based on their language spoken at home.

2.8 Studies on Non-Academic Determinants for Readiness in Tertiary Education

The lower than expected graduation rates in tertiary education institutions indicate that although many students are qualified and are accepted into a degree program, they may not be prepared for success in their study. To ensure and assist students to be successful in their study programs, a more inclusive approach measure student readiness for tertiary education is needed.

Many institutions have designed advisory programs, instruments and test to explore various aspects of students' readiness and to better prepare them for a higher level of learning environment especially in the Western contexts.

2.8.1 Ramp-Up to Readiness

Ramp-Up to Readiness is an advisory program for schools, designed to help students to be successful in postsecondary programs in California state, country (University of Minnesota, 2014). It has a series of interactive and engaging activities such as classes, small group discussion, and counsellor information sessions. There are six common elements practised in the program.

i. Board Student Recruitment

Parents and students are provided with tertiary education information and opportunities will be given to them to plan for enrollment. Efforts were also made to recruit underrepresented populations.

ii. Aligned Curricular Pathways

Students are provided with an aligned sequence of high school coursework leading to capstone high education courses (earning credit), with consistent and jointly established eligibility for high education courses.

iii. College Courses in Core Instructional Areas

Tertiary-level courses are the focus of the core instructional areas in the program.

iv. Robust and Well-Aligned Support Services

A range of support services will be provided to increase and sustain student success in all coursework.

v. Provisions for High-Quality Instruction and Coursework

Quality of courses offered, and the effectiveness of the program will be monitored and assessed by appointed mechanisms.

vi. Secondary and Postsecondary Alignment

Partnerships between high schools and tertiary institutions define the roles of the respective institutions through ongoing collaboration and memorandums of understanding

2.8.2 Postsecondary Education Readiness Test (P.E.R.T.)

P.E.R.T. is a customized common placement test in the state of Florida, United States of America (Florida Department of Education, 2016). P.E.R.T. delivers computer-adaptive assessments, which will select the next question based on answers given previously, were used to determine relevant course placement based on students' capabilities and skills. There were three P.E.R.T. assessments, each with 30 questions. All questions were untimed, participants were given sufficient time to consider and answer all question, but they are not allowed to change their answer once submitted. P.E.R.T. was used to assess students' readiness for college-level coursework specifically in English and mathematics. Basic skills such as reading and writing of English are also tested. Students' scores are valid for two years, it will then determine appropriate course placement at the tertiary level.

2.8.3 Personal Readiness Evaluation for Postsecondary (PREP)

PREP is an instrument developed to assess personal readiness for higher education among high school students. Aspects of measurements include self-efficacy and expectations, effort and persistence, and self-regulated learning strategies used. The measurement is taken earlier in the students' way to university so that the data collected can be used to inform interventions that may enhance their preparation for success in postsecondary/tertiary education.

2.8.4 Personal Readiness in Tertiary Education Scale (PRITES)

PRITES is an instrument developed based on a scale development proposed by DeVellis (2003) to identify salient psychosocial dimensions of students' readiness for tertiary education (Norazila, et al. 2016). A psychosocial approach looks into the combined influence of psychological factors and surrounding social environment on students' readiness for tertiary learning. Examples of psychosocial dimensions are Academic Self-Efficacy, Self-Regulated Learning, Effort and Mindset, Motivation and Goal Orientation, and Persistence and Determination (Robbins, 2004; Pohl, 2012).

Norazila et al. (2016) have developed and validated the Psychosocial Readiness for Tertiary Education Scales (PRITES) based on Exploratory Factor Analysis. The results indicated 71 items of PRITE encompassed five dimensions including Academic Self Efficacy, Self-Regulated Learning, Effort and Mindset, Motivation and Goal Orientation and Persistence and Determination. These five dimensions contributed 37% towards the indicators of students' readiness for success in tertiary education. Reliabilities for the five psychosocial dimensions ranging from 0.63 to 0.92 were acceptable for research purpose (Suhr & Shay, 2009).

Psychosocial dimensions encompassed in PRITES:

- Academic Self-Efficacy (ASE) refers to students' belief about their academic competence and expectancies for failure or success.
- Self-Regulated Learning (SRL) refers to students' approaches to manage their study, including time management, using study skills, planning, self-evaluating, self-monitoring, and seeking help from relevant when necessary.

- Effort and Mindset (EM) refers to students' mindset (intelligence or ability are viewed as malleable or fixed with effort), how they see success-failure and the effort they payoff for their coursework.
- Motivation and Goal Orientation (MGO) refers to students' motivation to study, to perform well in their study and to strive for future goals.
- Persistence and Determination (PD) refers to students' ability to uphold effort and remain engaging in goal-directed behaviour despite difficulties.

2.9 Summary

This chapter discusses the literature review of tertiary education readiness, including its definition, aspects, causing factors and its determinants. Ecology model by Bronfenbrenner which proposed a multilevel of environment encompassing various components was discussed to further clarify the complexity of tertiary education readiness. Demographic characteristics such as gender, ethnicity, and other components that could influence students' readiness for tertiary education were discussed in detail.

Developmentally instigative characteristics (also known as psychosocial factors) such as "Academic Self-efficacy (ASE)", "Self-regulated learning strategy use (SRL)", "Effort/ Mindset (EM)", "Motivation/ Goal Orientation (MGO)" and "Persistence and Determination (PD)" which may contribute to academic preparation were discussed.

CHAPTER 3

METHODS

3.1 Introduction

This chapter discusses the research methods used in the research including the research design, research questions, participants, research instrument, data collection procedures and how the data were analysed.

3.2 Research Design

A quantitative research design using comparative cross-sectional survey research method is used in this study. Cross-sectional survey is used to obtain information on level of readiness for tertiary learning using data gathered at a specific point in time from a pool of participants with varied characteristics and demographics of interest such as gender, ethnicity and study pathways. Cross-sectional survey has been used across various field of studies including but not limited to education, business, psychology, social science, religion, and government. In each of these fields of studies, cross-sectional survey research provides important findings that informs on policies, strategies and actions.

3.3 Research Location

Selected pre-university institutions in Sabah and Sarawak were involved in this study. The two states were selected because of their similarity in geographical area (both in Borneo island) and population demographics (both states consisting of a variety of

bumiputeras such as Malay, Iban, Bidayuh, Melanau, Kenyah, Kayan, Kedayan, Murut, Punan, Bisayah, Kelabit, Berawan and Penan in Sarawak and Malay, Kadazan-Dusun, Bajau, Murut and Suluk in Sabah). Furthermore, most research on tertiary learning readiness in Malaysia were focussed on institutions located in West Malaysia and there is a lack of studies implemented in higher education institutions in these two states of East Malaysia. Through this educators, researchers and policy makers could gain insight to further improve the current university entrance selection system. The research locations for this study included secondary schools offering the Malaysian Higher School Certificate (Sijil Tinggi Persekolahan Malaysia, STPM), matriculation centres, and public universities offering foundation/ pre-university programs in the states of Sabah and Sarawak. Approval and permission (refer to Appendix A) to conduct the research were obtained from the Minister of Education and public universities.

3.4 Research Population

Population refers to the group of interest in a research. In this study, the population consists of foundation/ pre-university students in Universiti Malaysia Sarawak (UNIMAS) and Universiti Malaysia Sabah (UMS), students from matriculation centres in Sarawak, and sixth formers from selected secondary schools in Sabah and Sarawak. As the research subject is looking at the readiness in tertiary learning, the population who are at the stage of preparing to enter to a tertiary program were selected.

3.5 Participants and Sampling Procedure

The purpose of sampling is to provide a practical means of enabling the data collection to be an appropriate representation of the population (Fellows & Liu, 2003). The study location was limited to East Malaysia, which included the states of Sabah and Sarawak. A total of 481 students who studies at Pre-University Centres, Matriculation Centres and secondary schools, participated in this study.

Among these participants, samples of 218 students were randomly selected by the lecturers from the two foundation/ Pre-University Centres available in Sabah and Sarawak namely at the Pre-University Centre at UNIMAS and UMS. Samples of 109 students were randomly selected from the Matriculation Centre in Sarawak by the teachers. In terms of sixth formers, three secondary schools were selected from Kuching Division in Sarawak, and 154 students were randomly picked as participants of the study among these secondary schools.

According the Malaysian Ministry of Education (2016), there are 10,657 Sixth Formers in the state of Sarawak and 14,336 Sixth Formers in the state of Sabah in 2016. Moreover, there are approximately 150 students studied in Matriculation College of Sarawak and approximately 2400 students studied in foundation program in Universiti Malaysia Sarawak and Universiti Malaysia Sabah (Tan, 2014, personal communication, 13 October 2014). It would be good to reach out to the whole population, but in this study, the population (approximately 28000) is too huge that it is not practicable to include everyone. Thus, convenience sampling (a non-probability sampling method) was used in this study, where subjects are selected because of their proximity and convenient accessibility.

Sample size can be calculated with a margin of error of 5% for confidence interval and 95% of confidence level. A standard calculation has been carried out to determine the sample size for this research where Standard of Deviation (Std. Dev.) was set at 0.5. The estimated sample size required for the study is computed using the formula below (Creative Research System, 2016):

$$\begin{aligned}
 \text{Necessary Sample Size (ss)} &= \frac{Z^2 (P) \times (1-P)}{C^2} \\
 &= \frac{(1.96)^2 (0.5) (1-0.5)}{0.0025} \\
 &= \frac{3.8416 (0.25)}{0.0025} \\
 &= \frac{0.9604}{0.0025} \\
 &= 384.18
 \end{aligned}$$

Z = Z value (e.g. 1.96 for 95% confidence level)

P = Percentage picking a choice, expressed as decimal (.5 used for sample size needed)

c = confidence interval, expressed as decimal (e.g., .05 = ± 5)

Thus, the estimated size required of students who study at Pre-University Centres, Matriculation Centres and sixth formers was 384.

As the population of pre-u/post-secondary student in Pre-University Centres, Matriculation Centres and secondary schools in Malaysia in year 2016 were (Ministry of Education Malaysia, 2016) were,

$$10657 + 14336 + 2400 + 150 = 27543$$

$$\text{Correcting for finite population} = \frac{SS}{1 + \frac{ss-1}{\text{population}}}$$

$$= \frac{384.18}{1 + \frac{384.18-1}{27543}}$$

$$= \frac{384.18}{1.01391206}$$

The required sample size = 379

Therefore, the total of 481 students who studied at Pre-University Centres, Matriculation Centres and secondary schools participating in this study was more than the computed required sample size of 379.

3.6 Research Instrument

The research instrument used in this research was PRITES, a psychosocial-based measure to determine students' readiness to undertake tertiary learning within a Malaysian context (Norazila Abd Aziz et al., 2017). The development of PRITES is discussed in more detail in the next section. The psychosocial dimensions of "Effort/ Mindset (EM)", "Motivation/ Goal Orientation (MGO)", "Persistence and Determination (PD)", "Self-regulated learning strategy use (SRL)" and "Academic Self-efficacy (ASE)" were used to measure the students' readiness for tertiary education.

PRITES has two main sections which consisted of 71 items. There were 36 Likert-scale items in section A, each with a four-point agreement scale ranging from ‘Strongly Disagree’, ‘Disagree’, ‘Agree’, to ‘Strongly Agree’. Another 35 Likert-scale items in section B, each with a four-point frequency scale of ‘Never’, ‘Rarely’, ‘Occasionally’, and ‘Regularly’. The two sections encompassed the five psychosocial dimensions in the form of close-format questions which required the participants to choose between the scales provided by the researcher (Williman, 2006). Section C consisted of five items that collected students’ demographic information such as gender, ethnicity, study pathways, language used at home and current overall grade point average in respective study pathways.

Of the 71 items, 27 items were associated with ASE, 28 questions associated with SRL, four questions with EM, seven questions with MGO, and five questions with PD. Table 3.1 summarizes the items in section A and B in the instrument.

Table 3.1: Item list.

No.	Statements	Dimensions
1.	I will get into university	Academic Self-Efficacy (ASE)
2.	I plan to earn a university degree	
3.	I will finish university	
4.	I want to go to university so that I can get a good job.	
5.	If I work hard, I will succeed in university	
6.	I can do my school work well if I try hard	
7.	Getting a university degree will help me achieve my future goals.	
8.	Working hard in school now will help me in my future.	
9.	I will finish university even if there are obstacles in my way.	
10.	I will achieve my academic goals.	
11.	I plan to get further education after I graduate from school.	
12.	I can imagine myself as a successful university student.	
13.	I enjoy learning because it helped me get better at something.	
14.	I can do even the hardest school work if I try.	
15.	I try to learn from the mistake I make on my school work.	
16.	I make sure I understand what I am taught I school.	
17.	I am hopeful about my future.	
18.	If I get good grades, work hard.	
19.	I am smart enough to go to university.	
20.	I can keep up academically with my classmates.	
21.	I don't mind making mistakes because I can learn something from them.	
22.	I do my school good grades.	

Table 3.1 continued

23.	I am capable of succeeding in challenging courses.	
24.	I try to do better in school than my peers.	
25.	I can change my intelligence.	
26.	I apply what I learn in school to what I do outside of school.	
27.	I work hard in school so that I don't look stupid.	
28.	I use feedback from my teachers to improve my assignments.	Self-Regulated Learning (SRL)
29.	I follow through on commitments that I make.	
30.	After I solve a problem, I evaluate the solution I came up with.	
31.	I make sure I understand an assignment when I work on it.	
32.	If my solution to a problem fails, I try to figure out why it didn't work.	
33.	When I come to a hard question in my school work, I try to answer it.	
34.	When I face a problem, I try to come up with the best solution before I act.	
35.	I combine information from class and from the book when I study for a test.	
36.	When I work on an assignment, I focus on getting it done correctly.	
37.	While I study, I ask myself questions to make sure I understand what I am studying.	
38.	If I fail at something, I try again.	
39.	I try to put important ideas into my own words when I study.	
40.	I plan things out before I begin my school work.	
41.	If a school project is large, I break it into manageable chunks.	
42.	I make sure I finish what I start.	
43.	I try to connect class reading to something interesting.	
44.	When I don't understand what I read, I reread the section.	
45.	When I do assignment, I try to connect it to my life somehow.	
46.	I check over my completed school work to make sure it is correct.	
47.	if I don't understand my school work, I ask my teacher for help.	
48.	When I do my school work, it's important to understand what I am doing.	
49.	I make an outline before I write a paper, even if it is not required.	
50.	When I get stuck on a question, I talk through it with someone.	
51.	I work hard to achieve the goals I set for myself.	
52.	While reading for class, I stop once in a while to review what I have read.	
53.	I use a planner/assignment book to keep track of my assignments.	
54.	I try to do my best in my classes.	
55.	I try to get rid of distractions when I study.	
56.	I turn in my school work on time.	Effort and Mindset (EM)
57.	I give up hanging out with friends to do my school work.	
58.	I give up watching T.V. to do my school work.	
59.	Even when my school work is boring, I keep working until I finish it.	
60.	Completing my assignments is more important than completing them well.	Motivation and Goal Orientation (MGO)
61.	I need a reward to make me learn.	
62.	I believe natural ability is more important than hard work for succeeding in university.	
63.	If I get good grades it is because of luck.	
64.	Going to school is a waste of time to me.	
65.	I prefer to do school work that is easy for me.	
66.	If something better came along, I would not go to university.	Persistence and Determination (PD)
67.	I am easily frustrated by difficult tasks.	
68.	When I come to a hard question in my school work, I skip it.	
69.	Other activities keep me from doing my homework.	
70.	I have the ability to complete my school work.	
71.	I prefer school work that challenges me.	

In section A, participants were instructed to read the statements carefully and respond to all the statements indicating whether they strongly disagreed, disagreed, agreed, and strongly agreed with the statements. Scores of 1 was given for strongly disagreed, 2 for disagreed, 3 for agreed and 4 for strongly agreed responses.

In section B, participants were instructed to read the statements carefully and respond to all the statements whether they never, rarely, occasionally, or regularly engaged in the stated activities. Responses of never was scored as 1, rarely as 2, occasionally as 3 and regularly as 4.

A participant that marked all statements as strongly agree and regularly would engage in the stated activities and would obtained a maximum score of $71 \times 4 = 284$. A participant that marked all statements as strongly disagreed and never engaged in the stated activities would obtain a minimum score of $71 \times 1 = 71$. Thus, the computed scores for the participants' responses to the 71 statements would range from 71 to 284. Using the same steps, the minimum and maximum scores a participant could obtain is shown in Table 3.2.

Table 3.2: Total score of each psychosocial dimensions of readiness for tertiary learning.

	Items	Maximum score (x4)	Minimum score (x1)	Range of Score
Overall readiness	71	284	71	71 – 284
Academic Self-Efficacy	27	108	27	27 – 108
Self-Regulated Learning	28	112	28	28 – 112
Effort and Mindset	4	16	4	4 – 16
Motivation and Goal Orientation	7	28	7	7 – 28
Persistence and Determination	5	20	5	5 – 20

Using similar steps, the participants overall responses and responses for each psychosocial dimension were classified into not ready at all, somewhat ready, ready and very ready for tertiary learning as shown in Table 3.3.

Table 3.3: Ranges for readiness level for tertiary learning.

	Not Ready at all	Somewhat Ready	Ready	Very Ready
Overall readiness	71 – 124	125 – 178	179 – 232	233 – 284
Academic Self-Efficacy	27 – 48	49 – 70	71 – 92	92 – 108
Self-Regulated Learning	28 – 49	50 – 71	72 – 93	94 – 112
Effort and Mindset	4 – 7	8 – 11	12 – 14	15 – 16
Motivation and Goal Orientation	7 – 13	14 – 18	19 – 23	24 – 28
Persistence and Determination	5 – 8	9 – 12	13 – 16	17 – 20

3.7 Development of PRITES

An initial version of PRITES (Psychosocial Readiness for Tertiary Education Scales) was developed based on the literature. It consisted of 80 items based on items used in past Western studies on psychosocial factors impacting on students' readiness for tertiary learning such as Ames and Archer (1988), Blackwell et al. (2007), Brown et al. (2007), Conley (2007), Dweck and Leggett (1988), Harackiewicz et al. (2002), Kitsantas et al. (2008), Pintrich (2004), Pintrich and De Groot (1990), Pohl (2012), Proctor et al. (2006) and Robbins et al. (2004, 2006). These items were reviewed and adapted to local context by the researcher and other research members comprising of academics at the Faculty of Cognitive Sciences and Human Development and Pre-University Centre (Unimas), School of Education (UMS) and Department of Mathematics (UiTM Kota Samarahan, Sarawak). The academics were lecturers of curriculum and instruction, tertiary education, TESL, language, and pre-university education ensuring the appropriateness and representativeness for the constructs and suitability with the cultural and contextual setting in Malaysia.

The draft version of PRITES was then tested with an initial sample of 442 students from the Centre for Pre-University Studies at Universiti Malaysia Sarawak (n=88), Sejangkat Matriculation Centre in Kuching, Sarawak (n=74) and Upper Six in Secondary Schools in Kuching, Sarawak (n=280). The pilot study data was analysed using an Exploratory Factor Analysis (EFA) to explore the validity and structure of the research instrument. EFA was conducted to identify the latent factor structure of PRITES. Assumptions for implementing EFA were tested before EFA was carried out including (a) sample size, (b) linearity, (c) normality, (d) outliers and variables (e) multicollinearity and singularity and (f) factorability of the correlation matrix (Coakes & Steed, 2007). The

sample size of 442 was considered adequate for EFA (Coakes & Steed, 2007). Skewness and kurtosis values of each item were between -1.635 to 1.938, indicating approximate normal distributions for values between -2 and 2 (George & Mallery, 2010). Furthermore, Coakes and Steed (2007) indicate that factor analysis is robust to deviation from assumptions of normality.

The EFA results showed a five-factor solution which accounted for 34.8% of the variances in readiness for tertiary learning. The EFA results suggested a six-factor solution with 74 items. However, after deleting the sixth factor which only had three items and a relative low Cronbach Alpha value, the final five factors consisted of 71 items as shown in Table 3.4. The five factors were named academic self-efficacy (27 items), self-regulated learning (28 items), effort and mindset (4 items), motivation and goal orientations (7 items), and persistence and determination (5 items). The internal consistencies of the five psychosocial factors ranged from 0.63 to 0.92 which was termed as acceptable for research purpose by Suhr and Shay (2009).

Table 3.4: Five dimensions and it's reliability.

Dimensions		Descriptions	Items	Cronbach Alpha
Dimension 1: Academic Self-Efficacy		Students' belief about their academic competence and expectancies for success or failure	27 items	0.915
Dimension 2: Self-Regulated Learning		Students' use of strategies to manage their own learning, including planning, using study skills, self-monitoring, self-evaluating, and seeking help when needed.	28 items	0.915

Table 3.4: continued

Dimension 3: Effort and Mindset	Students' mindset (ability or intelligence are viewed as fixed or malleable with effort), how students see success-failure and the effort they put into homework	4 items	0.649
Dimension 4: Motivation and Goal Orientation	Students' motivation to study, to do well in school and to pursue future goals	7 items	0.639
Dimension 5: Persistence and Determination	Students' ability to uphold effort and remain engaging in goal-directed behaviour despite difficulties	5 items	0.627

3.8 Data Collection Procedures

This research was conducted among the pre-university students in the state of Sabah and Sarawak. After permissions were obtained from the relevant authorities, 600 of the PRITES instruments are delivered to the identified instructors (teachers or lecturers) at the matriculation centre (120), two pre-university centres (150 for each centre) and three secondary schools (60 for each school) who helped to administer the survey. The instructors distributed the instruments among the students.

In the research instruments, the participants were asked to read the instruction carefully before answering the questionnaire. They were informed of the purpose of the

study and assured of anonymity. Participation in the study was voluntary. As stated in the research instrument, completion of the research instrument indicated that participants have given their consent to take part in the study.

Out of the 600 questionnaires distributed, 481 usable and fully completed questionnaires were used in the data analyses. Of the 481 questionnaires, 218 were from the two pre-university centres, 109 were from the matriculation centre and 154 were from the three secondary schools. Thus, the number of spoilt questionnaires were 119 (19.8%).

3.9 Data Analyses

The Statistical Packages for Social Sciences (SPSS) were used to analyse the data collected from the participants. Various tests were carried out to describe the data and answer the research questions. Descriptive statistics including frequencies, percentages, means and standard deviations were used to classify the demographic characteristics of the participants which include gender, ethnicity, study pathways, language used at home, latest assessment result (CGPA) and five dimensions of psychosocial readiness for tertiary education. Inferential statistics were used to ascertain the statistical differences in readiness for tertiary education based on the demographic characteristics. Table 3.4 shows the summary of the data analysis procedures used to answer the research questions listed in Chapter 1.

Table 3.5: Summary of research questions.

Research Questions	Data Analysis
RQ1: What was the level of psychosocial readiness for tertiary learning among pre-university student indicated by PRITES?	Mean and Standard Deviation
RQ2: Was there a difference in the level of psychosocial readiness for tertiary learning based on students' gender?	Independent sample t-Test
RQ3: Was there a difference in the level of psychosocial readiness for tertiary learning based on students' ethnicity?	One-way ANOVA
RQ4: Was there a difference in the level of psychosocial readiness for tertiary learning based on students' study pathways?	One-way ANOVA
RQ5: Was there a difference in the level of psychosocial readiness for tertiary learning based on students' language spoken at home?	Independent sample t-Test

3.9.1 Data Screening

Data screening ensured the entered data for statistical analyses was error free. Additionally, the screened data were checked for normality prior to implementing inferential statistical analyses.

3.9.2 Independent samples t-test

The independent samples t-test was used to ascertain the statistical differences in the participants' level of readiness for tertiary education (dependent variable) based on their demographic characteristics (independent variable) of gender (male or female), and language used at home (English or non-English).

Independent samples t-test was used to test the following hypotheses:

H_{01} : There was no significant difference between male and female students' level of readiness for tertiary education.

H_{04} : There was no significant difference between language used at home in students' level of readiness for tertiary education based on language spoken at home.

3.9.3 One-way Analysis of Variance (ANOVA)

The One-way Analysis of Variance (ANOVA) tests were used to investigate the statistical differences in the participants' level of readiness for tertiary education (dependent variable) based on their ethnicity (Malay, Natives of Sabah and Sarawak and Chinese) and study pathways (Matriculation, Sixth Form and University Foundation

program). Tukey HSD post hoc tests were used to further identify pair-wise differences when the One-way Analysis of Variance (ANOVA) tests were significant. One-way Analysis of Variance (ANOVA) tests were used to test the following hypotheses:

H_{02} : There was no significant difference in students' level of psychosocial readiness for tertiary learning based on ethnicity (Malay, Natives of Sabah and Sarawak, and Chinese).

H_{03} : There was no significant difference in students' level of psychosocial readiness for tertiary learning based on students' study pathways (Matriculation, Sixth Form and Public University Foundation pathways).

3.10 Summary

This chapter discussed the method used in this research. A quantitative research design was used with a cross sectional survey method. The population was the pre-university student in the state of Sabah and Sarawak. Convenient sampling method was used to identify the participants. The Personal Readiness in Tertiary Education Scales (PRITES) was used as the instrument in this study to investigate the level of readiness among the pre-university students. A total of 481 participants from three secondary schools, one matriculation centre and two public universities' pre-university centres participated in the study. Data collected were analysed based on descriptive statistics and inferential statistics using the SPSS software. The findings of the study are reported in Chapter Four.

CHAPTER 4

FINDINGS

4.1 Introduction

This chapter discusses the findings obtained from the study based on the data collected from post-secondary students in East Malaysia. Demographics of the student are described in the first section, followed by an analysis on their readiness in the five psychosocial dimensions, and differences in level of readiness based on gender, ethnicity, study pathways, and language used at home.

4.2 Demographics of the Participants

The participants of this study were pre-university students from institutions providing pre-university foundation programs in East Malaysia. Six hundred questionnaires were posted to the relevant institutions. A total of 481 questionnaires were returned with complete responses while 119 were either not returned or had incomplete responses.

Institutions included in this study were the Centre for Pre–University Studies at Universiti Malaysia Sarawak ($n_{1a} = 172$) and Centre for Pre–University Studies at Universiti Malaysia Sabah ($n_{1b} = 46$, $n_1 = 172 + 46 = 218$), Sarawak Matriculation Centre in Kuching (Sejingkat) ($n_2 = 109$), and three Upper Secondary Schools in Kuching area, Sarawak ($n_3 = 154$).

Almost two third of the students were females. Almost half of the students were from public university foundation program pathway, around one third were sixth formers and the rest from Ministry of Education Matriculation centre. Students were from three major ethnicity groups, largest being Malays, followed by Natives of Sabah and Sarawak and lastly Chinese. Slightly more than three quarters of the students did not usually speak English at home with their family members. Table 4.1 summarizes the demographics information of the participants based on their gender, ethnicity, study pathway, and language used at home.

Table 4.1: Summary of participants' demographics.

Student Demographic Information	Frequency, N	Percentage, %
Gender		
Male	163	33.9
Female	306	63.6
Not indicated	12	2.5
Study Pathway		
STPM	154	32.0
Matriculation	109	22.7
Public University Foundation	218	45.3
Ethnicity		
Malay	200	41.6
Native of Sabah & Sarawak	163	33.9
Chinese	96	20.0
Not indicated	22	4.5
Language use at Home		
English	87	18.1
Non-English	384	79.8
Not indicated	10	383.1

It is generally assumed that a higher return rates (response rate) of survey questionnaires will provide more accurate survey results (Aday 1996; Babbie 1990; Rea & Parker 1997). According to Rezk (2009), a review might be needed for a return rate that is lower than 25% while a return rate of 50% to 80% is considered adequate. In this study, the return rate was 80.2% and considered as adequate:

$$\begin{aligned}
 \text{Return Rate} &= \frac{\text{Number of completed instruments}}{\text{Number of completed instruments} + \text{Incomplete/not returned Instrument}} \times 100 \\
 &= \frac{481}{600} \times 100 \\
 &= 80.17\%
 \end{aligned}$$

4.3 Readiness for Tertiary Learning

Research Question 1: What was the level of psychosocial readiness for tertiary learning among pre-university student indicated by PRITES?

The means and standard deviations of each psychosocial dimensions of readiness were calculated. The mean scores were classified into a scale of $1 \leq X < 2$ = Low Readiness, $2 \leq X < 3$ = Moderate Readiness and $3 \leq X < 4$ = High Readiness.

The overall readiness for tertiary learning was computed as 2.97, indicating a moderate level of readiness among the participating students. The means and standard deviations for Academic Self Efficacy, Self-Regulated Learning, Effort and Mindset, Motivation and Goal Orientation, Persistence and Determination and overall readiness for tertiary learning are shown in Table 4.2.

Table 4.2: Means and standard deviations for readiness for tertiary learning.

Readiness for tertiary learning	Mean	Standard Deviation	Classification
Overall readiness	2.9705	0.32649	Moderate
Academic Self-Efficacy	3.3934	0.33691	High
Self-Regulated Learning	3.1370	0.47023	High
Effort and Mindset	2.8589	0.60906	Moderate
Motivation & Goal Orientation	2.9324	0.56046	Moderate
Persistence and Determination	2.5306	0.39051	Moderate

Among the five psychosocial dimensions, students were generally more ready in Academic Self-Efficacy (Mean = 3.39) and Self-Regulated Learning Strategy (Mean = 3.14). Students have moderate readiness in Effort and Mindset (Mean = 2.86), Motivation/Goal orientation (Mean = 2.93) and Persistence and Determination (Mean = 2.53) dimensions.

4.3.1 Differences in Level of Readiness based on Gender

H_{01} : There was no significant difference between male and female students in terms of their level of readiness for tertiary education.

Among the 481 participants, 163 (33.9%) were male students and 306 (63.6%) were female students. The 12 (2.5%) participants who did not indicate their gender were excluded from the analysis. The proportion of male and female students in this sample were representation of the distribution of gender in post-secondary education institutions in Malaysia, where number of females was about double the number of male students (Ministry of Education, 2014).

The independent sample t-tests results indicated that there were no significant differences between male and female students in the dimension of Persistence and Determination ($t(467) = -0.590$, $p = 0.556$). However, female students were generally more ready in other aspects of psychosocial readiness for tertiary education namely Academic Self Efficacy ($t(467) = -3.219$, $p = 0.001$), Self-Regulated Learning ($t(467) = -2.178$, $p = 0.030$), Effort and Mindset ($t(467) = -4.051$, $p = 0.0005$) and Motivation and Goal Orientation ($t(467) = -3.605$, $p = 0.0005$). Furthermore, for overall level of readiness for tertiary learning, female students were also significantly more ready than male students ($t(467) = -4.214$, $p = 0.0005$). Therefore, the null hypothesis of H_{01} were rejected for overall readiness level and four of the five psychosocial dimensions. The results of the independent samples t-tests are shown in Table 4.3.

Table 4.3: Gender differences in psychosocial readiness

	N	Mean	S.D.	Classification	t	df	p
Overall					-4.214	467	0.0005
Male	163	2.8875	.33331	Mod.			
Female	306	3.0177	.31066	High			
ASE					-3.219	467	0.001
Male	163	3.3291	.35817	High			
Female	306	3.4321	.31370	High			
SRL					-2.178	467	0.030
Male	163	3.0755	.49160	High			
Female	306	3.1744	.45511	High			
EM					-4.051	467	0.0005
Male	163	2.7078	.60972	Mod.			
Female	306	2.9440	.59646	Mod.			
MGO					-3.605	467	0.0005
Male	163	2.8093	.59211	Mod.			
Female	306	3.0002	.51992	High			
PD					-.590	467	0.556
Male	163	2.5156	.39629	Mod.			
Female	306	2.5379	.38780	Mod.			

Note: ASE = Academic Self Efficacy, SRL = Self-Regulated Learning, EM = Effort and Mindset, MGO = Motivation and Goal Orientation, PD = Persistence and Determination.

4.3.2 Differences in Level of Readiness based on Ethnicity

H_{02} : There was no significant difference in the level of psychosocial readiness for tertiary learning based on students' ethnicity (Malay, non-Malay natives of Sabah and Sarawak, and Chinese).

Table 4.4: Differences in level of readiness between the three ethnic groups.

		N	mean	S.D.	classification	F	df	p
Overall						9.887	2,456	0.0005
	Malay	200	3.0060	.30073	High			
	Natives of Sabah & Sarawak	163	2.9990	.31425	Mod.			
	Chinese	96	2.8404	.35987	Mod.			
ASE						10.308	2,456	0.0005
	Malay	200	3.4411	.31119	High			
	Natives of Sabah & Sarawak	163	3.4204	.31804	High			
	Chinese	96	3.2627	.37250	High			
SRL						2.617	2,456	0.074
	Malay	200	3.1777	.44954	High			
	Natives of Sabah & Sarawak	163	3.1452	.44540	High			
	Chinese	96	3.0449	.54576	High			
EM						3.855	2,456	0.022
	Malay	200	2.8900	.58754	Mod.			
	Natives of Sabah & Sarawak	163	2.9012	.58802	Mod.			
	Chinese	96	2.7014	.68309	Mod.			
MGO						7.569	2,456	0.001
	Malay	200	2.9735	.52272	Mod.			
	Natives of Sabah & Sarawak	163	2.9804	.58298	Mod.			
	Chinese	96	2.7326	.53118	Mod.			
PD						1.913	2,456	0.149
	Malay	200	2.5478	.39645	Mod.			
	Natives of Sabah & Sarawak	163	2.5477	.38025	Mod.			
	Chinese	96	2.4604	.38838	Mod.			

The students consisted of Malays (n=200), non-Malay natives of Sabah and Sarawak (n=163), and Chinese (n=96). There were 22 participants who either identified

themselves as “Other ethnicity” (11 participants) or did not indicate their ethnicity (11 participants) were excluded from the analysis.

The One-way ANOVA tests were carried out and the results as shown in Table 4.4 indicated that there were no significant differences for Self-Regulated Learning ($F(2,456) = 2.617, p = 0.074$) and Persistence and Determination ($F(2,456) = 1.913, p = 0.149$) based on the students’ ethnicity.

There were significant differences in the overall level of readiness ($F(2,456) = 9.887, p = 0.0005$), Academic Self Efficacy ($F(2,456) = 10.308, p = 0.0005$), Effort and Mindset ($F(2,456) = 3.855, p = 0.022$), and Motivation and Goal Orientation ($F(2,456) = 7.569, p = 0.001$).

Tukey HSD tests were carried out to further determine the pair-wise differences between these three groups of ethnics for overall readiness, Academic Self Efficacy, Effort and Mindset and Motivation and Goal Orientation. Result indicated that Chinese students were generally less ready in overall readiness for tertiary education (refer Table 4.5). Similarly, Chinese students were also less ready in the psychosocial dimensions of Academic Self Efficacy, Effort and Mindset and Motivation and Goal Orientation (refer Table 4.6, Table 4.7 and Table 4.8).

Table 4.5: Tukey HSD results for overall readiness between ethnicity.

	Ethnicity	N	Subset for alpha = 0.05	
			1	2
Tukey HSD	Chinese	96	2.8404	
	Natives in Sabah & Sarawak	163		2.9990
	Malay	200		3.0060

Table 4.6: Tukey HSD results for Academic Self Efficacy readiness between ethnicity.

	Ethnicity	N	Subset for alpha = 0.05	
			1	2
Tukey HSD	Chinese	96	3.2627	
	Natives in Sabah & Sarawak	163		3.4204
	Malay	200		3.4411

Table 4.7: Tukey HSD results for Effort and Mindset readiness between ethnicity.

	Ethnicity	N	Subset for alpha = 0.05	
			1	2
Tukey HSD	Chinese	96	2.7014	
	Malay	200		2.8900
	Natives in Sabah & Sarawak	163		2.9012

Table 4.8: Tukey HSD results for Motivation and Goal Orientation readiness between ethnicity.

	Ethnicity	N	Subset for alpha = 0.05	
			1	2
Tukey HSD	Chinese	96	2.7326	
	Malay	200		2.9735
	Natives in Sabah & Sarawak	163		2.9804

4.3.3 Differences in Readiness Level based on Study Pathways

H_{03} : There was no significant difference in the level of psychosocial readiness for tertiary learning based on students' study pathways (Matriculation, Sixth Form and Public University Foundation program).

In terms of their study pathways (entry qualification), 218 of the participants were students studying in a public university foundation program (45.32%). Another 154 (32.02%) of the participants were studying in sixth form and 109 (22.66%) of them in matriculation centre.

Table 4.9 shows the One-Way ANOVA results for differences in level of readiness between study pathways. The results revealed that there were significant differences in overall readiness for tertiary learning between students from different study pathways ($F(2,478) = 16.807, p = 0.0005$). There were also differences in all the psychosocial dimensions of Academic Self Efficacy ($F(2,273.67) = 15.842, p = 0.0005$), Self-Regulated Learning ($F(2,478) = 7.041, p = 0.001$), Effort and Mindset ($F(2,478) = 14.755, p = 0.0005$), and Motivation and Goal Orientation ($F(2,478) = 9.845, p = 0.0005$). However, there were no significant differences between participant's study pathways in the psychosocial dimension of Persistence and Determination ($F(2,478) = 2.051, p = .130$). Thus, in general, the H_{02} was rejected.

Table 4.9: Differences in level of readiness between study pathways.

	N	Mean	S.D.	classification	F	df	p
Overall					16.807	2,478	0.0005
STPM	154	2.8562	.33515	Mod.			
Matriculation	109	2.9746	.30347	Mod.			
Pre–University	218	3.0491	.30864	High			
ASE					15.842	2,273.67	0.0005
STPM	154	3.2684	.36425	High			
Matriculation	109	3.4820	.28641	High			
Pre–University	218	3.4373	.31581	High			
SRL					7.041	2,478	0.001
STPM	154	3.0543	.51633	High			
Matriculation	109	3.0807	.43536	High			
Pre–University	218	3.2237	.43910	High			
EM					14.755	2,478	0.0005
STPM	154	2.7090	.64320	Mod.			
Matriculation	109	2.7501	.55298	Mod.			
Pre–University	218	3.0192	.57355	High			
MGO					9.845	2,478	0.0005
STPM	154	2.7703	.53975	Mod.			
Matriculation	109	3.0163	.60130	High			
Pre–University	218	3.0051	.53101	High			
PD					2.051	2,478	.130
STPM	154	2.4790	.39857	Mod.			
Matriculation	109	2.5439	.38429	Mod.			
Pre–University	218	2.5604	.38593	Mod.			

Tukey HSD post hoc tests were performed to determine pair-wise differences for the significant One-Way ANOVA results for study pathways. For overall level of readiness for tertiary learning, the Post Hoc Tukey HSD test results showed that in general (Table 4.10), students in pre-university (Mean = 3.05) and matriculation program (Mean = 2.97) were more ready than students in sixth form (Mean = 2.86).

Table 4.10: Overall level of readiness for different study pathways.

	Education programs	N	Subset for alpha = 0.05	
			1	2
Tukey HSD	Sixth Form	154	2.8562	
	Matriculation	109		2.9746
	Public University Foundation	218		3.0491

Results for readiness in the psychosocial dimensions of Academic Self-Efficacy and Motivation and Goal Orientation are shown in Table 4.11 and Table 4.12. Pre-university (Mean for ASE = 3.44, MGO = 3.001) and matriculation (Mean for ASE = 3.48, MGO = 3.002) students had higher level of readiness than students in sixth form (Mean for ASE = 3.27, MGO = 2.77).

Table 4.11: Academic Self-Efficacy readiness for different study pathways.

	Education programs	N	Subset for alpha = 0.05	
			1	2
Tukey HSD	Sixth Form	154	3.2684	
	Public University Foundation	218		3.4373
	Matriculation	109		3.4820

Table 4.12: Motivation and Goal Orientation readiness for different study pathways.

	Education programs	N	Subset for alpha = 0.05	
			1	2
Tukey HSD	Sixth Form	154	2.7703	
	Public University Foundation	218		3.0051
	Matriculation	109		3.0163

The Tukey HSD test results shown in Table 4.13 and Table 4.14 further indicated that pre-university students (Mean for SRL = 3.22, EM = 3.02) were significantly higher, indicating more readiness than sixth form (Mean for SRL = 3.05, EM = 2.71) and matriculation (Mean for SRL = 3.08, EM = 2.75) students in the psychosocial dimensions of Self-Regulated Learning and Effort and Mindset.

Table 4.13: Self-Regulated Learning Strategy Use readiness for different study pathways

	Education level	N	Subset for alpha = 0.05	
			1	2
Tukey HSD	Sixth Form	154	3.0543	
	Matriculation	109	3.0807	
	Public University Foundation	218		3.2237

Table 4.14: Effort and Mindset readiness for different study pathways.

	Education level	N	Subset for alpha = 0.05	
			1	2
Tukey HSD	Sixth Form	154	2.7090	
	Matriculation	109	2.7501	
	Public University Foundation	218		3.0192

4.3.4 Differences in Level of Readiness based on Language used at Home

H_{04} : There was no significant difference between language used at home in students' level of readiness for tertiary education based on language spoken at home.

Considering not all pre-university students have taken Malaysian University English Test (MUET), data of students' spoken language at home was collected instead of their MUET result. A total of 384 students (81.53%) did not usually speak English at home with their family. Only 87 (18.47%) of them used English as a common daily language at home. There were no significant differences in the students' overall level of readiness for tertiary learning and the five psychosocial dimensions based on their use of English at home ($p > 0.05$, ranging from 0.162 – 0.925). Thus, H_{04} was not rejected. Table 4.15 showed the independent samples t-test results for differences in readiness for tertiary learning based on language used at home.

Table 4.15: Differences in level of readiness based on language use at home.

	N	mean	S.D.	classification	t	df	p
Overall					-0.118	469	0.906
English	87	2.9691	.34084	Mod.			
Not English	384	2.9737	.31958	Mod.			
ASE					1.383	113.876	0.169
English	87	3.4479	.38855	High			
Not English	384	3.3860	.32009	High			
SRL					0.094	469	0.925
English	87	3.1464	.51435	High			
Not English	384	3.1412	.45897	High			
EM					0.213	469	0.831
English	87	2.8758	.61221	Mod.			
Not English	384	2.8603	.61077	Mod.			
MGO					-1.402	469	0.162
English	87	2.8582	.54187	Mod.			
Not English	384	2.9501	.55405	Mod.			
PD					-0.289	469	0.772
English	87	2.5174	.39482	Mod.			
Not English	384	2.5308	.38973	Mod.			

4.4 Summary of Findings

Table 4.16: The summary of the findings as reported in the previous sections.

		Readiness for tertiary learning					
		Overall	ASE	SRL	EM	MGO	PD
Gender							
	Male	Mod.	High	High	Mod.	Mod.	No significant differences
	Female	High	High	High	Mod.	High	
Ethnicity							
	Malay	High	High	No significant differences	Mod.	Mod.	No significant differences
	Natives of Sabah & Sarawak	Mod.	High		Mod.	Mod.	
	Chinese	Mod.	High		Mod.	Mod.	
Study Pathways							
	STPM	Mod.	High	High	Mod.	Mod.	No significant differences
	Matriculation	Mod.	High	High	Mod.	High	
	Pre–University	High	High	High	High	High	
Language used at Home			No	significant	differences		

4.5 Summary

Chapter 4 discusses the findings of the study. In summary the results indicated that the students in the three study pathways had moderate level of overall readiness for tertiary learning. They had the highest level of readiness in Self-Regulated Learning Strategies, followed by Effort and Mindset, Motivation and Goal Orientation. In general, the students had low readiness in term of Academic Self-Efficacy.

Furthermore, there were statistically significant differences between male and female in terms of their level of readiness for tertiary education. Female students were significantly more ready than male students.

In term of study pathways, there were statistically significant differences among sixth formers, Public University Foundation Program students and matriculation students. Post Hoc Tukey HSD test results revealed that students in Public University Foundation program and Matriculation program were more ready than students in sixth form.

There were statistically significant differences between Malay, Chinese and Native students in Sabah and Sarawak as determined by one-way ANOVA. Chinese students were less ready in overall readiness for tertiary education. Similarly, Chinese students were also less ready in the psychosocial dimensions of Academic Self Efficacy, Effort and Mindset and Motivation and Goal Orientation as compared with Malays and Native students in Sabah and Sarawak. There were no significant differences in students' level of readiness for tertiary education based on language used at home. The following chapter discusses the findings in relation to the existing literature and provide some implications of the study and suggestions for future research.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter comprises three sections. Section 5.1 summarizes the whole research by describing the problem statement, objectives of the study, research questions, methods used and results. Section 5.2 discusses and concludes the results analysed in chapter four. Limitations of the research, recommendations for policy makers, educators, and future researchers were explained in section 5.3.

5.2 Summary of the Study

The bulk of college readiness studies were carried out in western countries especially in the United States of America. However, as there are differences in cultural settings and policy practices, the findings and conclusions outlined in the western studies may not be adequate to explain tertiary education readiness for eastern and developing countries such as Malaysia. Therefore, the present study attempted to explore and understand the current level of readiness for tertiary education especially for East Malaysian pre-university students.

This study investigated the level of readiness among students studying at various pre-university programs in public universities, matriculation centres and upper-secondary schools in the states of Sabah and Sarawak. The aim was not to replace the current predominant determinant of readiness for tertiary education, namely, summative/ public assessments, but to explore other factors such as the psychosocial dimensions which might contribute to student academic performance at the tertiary institutions. The psychosocial dimensions investigated in

this study were Academic Self Efficacy, Self-Regulated Learning, Effort and Mindset, Motivation and Goal Orientation, Persistence and Determination.

The study was a survey research, and data was collected at a specific point in time from participants with varied characteristics and demographics of interest in this study such as gender, ethnicity, study pathways (STPM, Matriculation, and Public University Foundation programs) and language used at home. Results of the study could be used to inform and suggest interventions to better prepare students for tertiary education, especially in the states of Sabah and Sarawak.

This study is guided by five specific research objectives:

- i. To determine students' level of psychosocial readiness for tertiary learning.
- ii. To investigate gender differences in students' level of psychosocial readiness for tertiary learning.
- iii. To investigate ethnicity differences in students' level of psychosocial readiness for tertiary learning.
- iv. To investigate study pathways (STPM, Matriculation and Public University Foundation Programs) differences in students' level of psychosocial readiness for tertiary learning.
- v. To investigate differences in students' level of psychosocial readiness for tertiary learning based on language spoken at home.

Four hypotheses were tested in this study:

H_{01} : There was no significant difference between male and female students' level of readiness for tertiary education.

H₀₂ : There was no significant difference in students' level of psychosocial readiness for tertiary learning based on ethnicity (Malay, Natives of Sabah and Sarawak, and Chinese).

H₀₃ : There was no significant difference in students' level of psychosocial readiness for tertiary learning based on students' study pathways (Matriculation, Sixth Form and Public University Foundation pathways).

H₀₄ : There was no significant difference between language used at home in students' level of readiness for tertiary education based on language spoken at home.

The PRITES research instrument, developed by Norazila et al. (2016) was used to obtain the relevant information to answer the research objectives. Data collected included participants' demographic characteristics and their level of readiness in terms of five psychosocial dimensions of Academic Self-Efficacy (ASE), Self-Regulated Learning (SRL), Effort and Mindset (EM), Motivation and Goal Orientation (MGO) and Persistence and Determination (PD).

The research instrument was divided into three sections: section A had 36 items with "four-point agreement scale" and section B consisted of another 35 items with "four-point frequency scale". Data regarding basic demographic characteristics such as gender, ethnicity, study pathways, language use at home were collected in section C.

Out of the 71 items in section A and section B, 27 items were used to obtain the level of readiness in terms of ASE, while seven items were used to measure the level of readiness in terms of MGO. Another 28 items were used to measure the level of readiness in terms of SRL. Four items determined the level of readiness related to students' Effort and Mindset

(EM). Five items were used to measure students' level of readiness in terms of their persistence and determination (PD).

The population of the study consisted of all pre-university students in Sixth Form, Matriculation and Pre-university Foundation study pathways in the states of Sabah and Sarawak. A total of 481 out of the 600 administered questionnaires (80.2%) were returned and these 481 participants were the samples of the study.

5.3 Discussion of Findings

a. Research Question 1: What was the level of psychosocial readiness for tertiary learning among pre-university student indicated by PRITES?

This study found that there was a moderate level of readiness for tertiary education among pre-university students in East Malaysia. In terms of the five psychosocial dimensions, students were better prepared for Academic Self-Efficacy and Self-Regulated Learning (both achieving high level of readiness) but were just moderately prepared in terms of Effort and Mindset, Motivation Goal Orientation, and Persistence and determination. Students lacking preparation in Effort and Mindset, did not attribute their academic successes and failures to their level of effort spent. Thus, they were more inclined towards keeping their effort away from study (Ames & Archer, 1988; Blackwell, Trzesniewski, & Dweck, 2007).

Motivation Goal Orientation as an essential factor in Self-Regulated Learning framework is important from the beginning of learning. During student's brainstorming and planning phase, student's interests and values were factored into the decision of reasons completing and effort worth spending on learning activity. If students do not see value in

learning tasks, they are less likely to devote time targeting goals and planning strategies to undertake those tasks (Simons, Dewitte, & Lens, 2004; Wang & Holcombe, 2010).

Persistence and determination is intricately related to effort and mindset and to motivation goal orientation. It denotes an on-going effort a student spent in order to achieve his/her goal. Lacking readiness in term of Persistence and Determination, students may hardly maintain their effort and endurance in a goal-directed behaviour when coming across impediments (Duckworth & Seligman, 2006).

Thus, although these students had successfully completed their secondary school education at the *Sijil Pelajaran Malaysia* (SPM) public examination and was transitioning to tertiary education, in general, the finding suggested that they were not yet ready for the learning environment of higher education.

The findings in this study were supported by some reports and statements reported in the media. For example, the Asian Development Bank (2012) noted that “too many secondary school students are unable to pass university entrance examinations, and those who manage to proceed to university are unprepared for the rigors of higher learning” (p. viii), indicating the need for measures other than just academic achievement as the yardstick for entry into university. Furthermore “as more students enter colleges and universities, there is a greater need to improve their readiness for higher learning” and “senior secondary schools need to acknowledge the changing nature of higher learning in universities, and specifically to learn how to provide a curriculum and pedagogy that foster creative thought, problem solving, critical thinking, and entrepreneurial spirit.” (Asian Development Bank, 2012, p. viii). This comment by the Asian Development Bank, clearly indicates the needs for schools and pre-university institution to provide a learning environment that prepare students not just

academically but also in other non-subject disciplined specific knowledge and skills such as psychosocial skills. In addition, it was noted that “across all developing Asia, it means improving the readiness of students from underrepresented communities.”, implying the need to cater for at-risk communities such as those in the rural areas and minority groups (in Sabah and Sarawak).

These findings were also supported by the media statements by the Deputy Vice-Chancellor of Universiti Kebangsaan Malaysia, Professor Dr Noor Aziah Mohd Awal (May 9, 2016). She commented that university differs from schools in many ways. She named a list of key skills to thrive on campus including communication skills, teamwork, time management and tolerance of other cultures and religion. Students enjoyed more freedom to do things on their own in the university, there are fewer rules at a university and students are expected to be independent and responsible with their academic work. Thus, students entering tertiary education need not only academic skills but also communication skills, teamwork, time management and tolerance of other cultures and religions in order to succeed in their campus life.

In the same article, Universiti Teknologi MARA director of students’ development Dr Mohd Bahrin Othman further added that students would also need self-confidence and being able to take risks as well as having ethical and moral values. Thus, it was noted that some students who did not do well in secondary school, blossomed at university while others who excelled in secondary school, floundered at university. Monsurat Olusola Mosaku, Mohd Najib Ghafar, Abdul Rahim Hamdan & Aqeel Khan (2014), on the other hand, suggested the need to improve student determination by providing academic support such as counselling, financial support, mentoring, peer tutoring, student centres, study group, welfare support.

b. Research Question 2: Was there a difference in the level of psychosocial readiness for tertiary learning based on students' gender?

The Independent Sample T-test results showed that there were significant differences between students of different gender. Female students were generally more ready in four of the five psychosocial dimensions of readiness for tertiary education, namely Academic Self Efficacy, Self-Regulated Learning Strategies, Effort and Mindset and Motivation and Goal Orientation. Furthermore, female students were also significantly more ready than male students on overall level of readiness for tertiary learning.

In the Malaysian context, female students have equal access and opportunity to succeed in education, including for science- and mathematics- related subjects (Ministry of Education, 2012). Based on the enrolment figures for 2014, in the public universities, 61% were female students and 39% were male students (Ministry of Education, 2014; Ministry of Higher Education, 2014).

This result was consistent with some of the research studies (Latifah Ismail, 2014; Nadia Ainuddin Dahlan, Nor Azian Md Noor, Sharifah Muzlia Syed Mustafa, Khadijah Said Hashim and Voviana Zulkifli, 2010). Malaysian female students have been outperforming male students in both science- and mathematics- related subjects for public examinations such as PMR and SPM (Nadia Ainuddin Dahlan et al. 2010; Jelas, Yunus, Dahan, & Redzuan, 2001). Latifah Ismail (2014) noted that female students are more dedicated, determined, diligent, and aspiring in both college and career. Thus, these findings and the current study's findings would indicate that not only are female students are more ready for tertiary learning academically but also in the psychosocial dimensions. The following were the female students' characteristics concluded by Latifah Ismail (2014), which contribute to their success in

academic attainment: (1) Female students are hard working in their studies. (2) Female students are very determined in achieving their vision. (3) Female students are more serious in their work and pay more attention in class. (4) Female students are more dedicated. (5) Female students have better self-discipline (self-regulated). (6) Female students have long sighted views. (7) Female students listen to advices and highly motivated. (8) Female students give priorities to their studies. (9) Female students getting matured faster than male students.

Latifah Ismail (2014) also listed seven reasons of why male students did not do well in their academic performance: (1) Most male students are not serious in their studies. (2) Most male students are not determined in their work. (3) Most male students did not aware of their life goals. (4) Male students prefer technical work and specialize in engineering. (5) Male students spend more time in sport games. (6) Male students mature slower than female students. (7) Male students prefer getting job career than pursuing tertiary education.

Combs, Slate, Moore, Bustamante, Onwuegbuzie and Edmonso (2010) in their study investigated gender differences in college preparedness using academic indicators of SAT and ACT in the state of Texas. In this study, they investigated the extent to which boys and girls differed in their college-ready performance in reading, in math, and in both subjects. They reported statistically significant differences between the college-ready scores of boys and of girls in reading, math, and in both subject areas. Pekkarinen (2011) reported that university preparedness, girls have always been "better" at school, incidence of behavioural problems is higher among boys, and female students favour reading while male students favour mathematics.

The phenomena of imbalance gender distribution in tertiary education may disturb the social harmony and stability of Malaysian society. Effective measures and interventions

should be considered and implemented to rectify the trends where females are more superiors than males in terms of the educational attainment (Latifah Ismail, 2014).

c. Research Question 3: Was there a difference in the level of psychosocial readiness for tertiary learning based on students' ethnicity?

The findings of the study showed that there were significant differences in the level of psychosocial readiness for tertiary learning between students of different ethnicity. Specifically, there were significant ethnicity-based differences in the overall level of readiness, Academic Self Efficacy, Effort and Mindset, and Motivation and Goal Orientation. On the other hand, there were no significant differences for Self-Regulated Learning and Persistence and Determination.

In terms of overall readiness, Malay students were the only ethnicity who scored high level of readiness. Malay students were more ready in term of Academic Self Efficacy. Natives of Sabah and Sarawak were more ready in the dimensions of Effort and Mindset and Motivation and Goal Orientation. While Chinese were the least ready in the psychosocial dimensions.

These results were similar to those reported by Buchanan and Selmon (2008) and Metofe (2014), which found a correlation between Academic Self Efficacy and academic performance. Buchanan and Selmon (2008) found that there was a difference in self-efficacy between African Americans and Caucasians. Metofe's (2014) study also showed that self-efficacy was significantly and positively correlated with students' academic performance among the African American.

Liew (2009) investigated how individual, family and school characteristics affect mathematics and science achievement of the eighth graders in Malaysia. Liew's study included 5,579 eighth grade students among 150 schools in Peninsular Malaysia. Liew reported no differences in science achievement based on ethnicity. Despite of the non-Malay students performed significantly better in mathematics achievement than Malay students, the Malay students still scored a better psychosocial readiness than others.

Kohlhaas, Lin, and Chu (2010) agreed that factors such as “inadequate learning opportunities in the areas of curriculum, instruction, assessment, teacher education, school organization, educational policies and a failure to connect with students’ homes and community environments” (p. 3) play a role in the performance of different ethnic groups. Veloo et al. (2015) suggested that pedagogical practices and learning resources should be provided to create learning conditions suitable for learners from diverse ethnic groups. In these learning contexts, teachers may encourage a specific group of potentially low-achieving students to develop learning strategies such as mathematics skills (Belal-Rabab’h & Arsaythamby, 2014), science skills (Cleary et al., 2008) and higher literacy abilities (Schunk & Zimmerman, 2007).

d. Research Question 4: Were there differences in the level of psychosocial readiness for tertiary learning based on students’ study pathways?

The findings in this study indicated that there were significant differences in psychosocial readiness for tertiary learning among the students from different study pathways. Students studying in public university foundation pathway were more ready than students in the matriculation, followed by those in Sixth form programs.

These findings strengthened Hazilah Mohd Amin et al. (2013) findings that students from different study pathways tend to have different performance outcomes during tertiary education. In their study, matriculation students and sixth formers were able to improve or maintain their CGPAs during their tertiary studies while diploma holders showed a decline in performance as compared with their entry CGPAs (Note: diploma students were not included in the present study).

These findings, however, contradicted the findings reported by Azmi bin Mohd Tamil and Haikal Ghazali (2015). They found no significant differences in interpersonal skills of second-year medical students based on their entry qualifications (STPM/A-Level versus Matriculation/Pre-University).

Sixth form as a post-secondary education is affiliated with the secondary school system. It offers a secondary-like education environment such as public examination (high-stakes tests) at the end of study. However, sixth form has been rebranded as one of the initiatives in the Malaysian Education Blueprint 2013-2025 by the Malaysian Ministry of Education which aims to elevate the quality of the program to stand side by side with other pre-university study such as matriculation or public university foundation pathways.

e. Research Question 5: Was there a difference in the level of psychosocial readiness for tertiary learning based on students' language spoken at home?

Findings from the present study indicated that there were no significant differences in psychosocial readiness for tertiary learning between the students who used English at home and those who did not. This finding concurred with results reported in a past study by Arsad, Bauniyamin and Manan (2014), who investigated the impact of English level on the overall

academic performance using Neural Network (NN) prediction model among a batch of student who studied bachelor level engineering programme at the Faculty of Electrical Engineering, Universiti Teknologi MARA (UiTM). Their results showed that English ability has little impact on student's final CGPA.

The result appeared to contradict the study by Rahil et al. (2006) and Arshad Abd Samad, Sharifah Zainab Syed Abd Rahman and Siti Norbaiti (2008). Rahil et al. (2006) showed that self-efficacy could affect one's English achievement.

Arshad Abd Samad et al. (2008), examined how Malaysian University English Test (MUET) may act as a predictor of academic achievement and success at university. Student's CGPA were measured in semester 1 and semester 6. They found correlations between student's cumulative result and the four language components (reading, writing, speaking and listening) of MUET. They observed that the correlations improve with time when comparing student's CGPA in semester 1 and student's CGPA in semester 6, the later has higher correlation with their MUET score.

However, it should be noted that language used at home may not demonstrate students' English ability. Future research should obtain results generated by a validated examination such as MUET (Malaysian University English Test), TOEFL (Test of English as a Foreign Language) or IELTS (International English Language Testing Service).

5.4 Implications of the Study

The students' level of psychosocial readiness for tertiary learning was moderate. Thus, they might not achieve their full potential at the tertiary learning institutions even though they might be academically ready for tertiary learning. Thus, sixth forms, matriculation centres and public university pre-university centres should not focus merely on academic achievement but need to also put in place non-academic preparation programs to better prepare their students for tertiary learning. In addition, before the students start their tertiary studies, higher education institutions need to have in place non-cognitive readiness for tertiary learning screening programs to determine students' readiness for tertiary learning and put in place early intervention and guidance programs to build up student's study habits and skills necessary to succeed in tertiary education. Based on the findings of the present study, these screening and intervention programs should also be, targeted at male students, sixth formers, and Chinese students.

Robbins et al. (2004; 2006) reported that psychosocial dimensions of an individual are related to one's academic performance. Thus, considering a student's readiness for tertiary learning should include not just the traditional measures of academic achievement but psychosocial dimensions of readiness. PRITES is a research instrument that measured psychosocial dimensions as predictors of a student's academic outcome in the tertiary level in the local context. As such, more research involving a wider group of students from sixth form, matriculation centres, public university pre-university centres, private university pre-university centres, polytechnic and community colleges and other equivalent study pathways should be carried out in Malaysia.

5.5 Limitations of the study

There are a few limitations in this study. As discussed earlier in chapter 1 and chapter 3, only cross-sectional survey method and convenience sampling technique were used for data collection in this study. Data was collected at a specific point of time from a pool of participants, thus, it may not be possible to identify the cause and effect of a person readiness. Convenience sampling could lead to and the sample may not be representative of the population. Furthermore, studies that are experimental or longitudinal in nature should be carried out in the future to further verify the results obtained in this study.

Secondly, this study did not involve all secondary schools with sixth forms. Rural secondary schools were not sampled in this study. Thus, the findings may not be representative of rural sixth form students. Students studying in other equivalent educational institutions such as polytechnics, community colleges and vocational colleges and private foundation programs, were also not considered in this study.

Thirdly, only five psychosocial dimensions were considered in this study. Other dimensions such as, social involvement and financial support which are also important for tertiary learning readiness were not considered. In addition, students' psychosocial readiness was investigated in tandem with their academic achievement in this study. However, this study did not investigate academic achievement but found that the non-Malay students had lower psychosocial readiness for tertiary learning compared to the Malay students. Thus, future study should investigate psychosocial readiness and academic achievement of students of different study disciplines and ethnicity.

Data collection was done in the beginning of the semester, and students were just “back to school” for a new semester. Thus, students may still be in a “holiday mood” and not prepared for academic study.

5.6 Recommendations of the study

The limitation of the study offered some recommendations for future research. This study was carried out as a cross-sectional study with data collected at a single time. It also did not control for extraneous variables such as tuition and social economic status that might influence the results. Therefore, more studies that are experimental or longitudinal in nature should be carried out in the future to further verify the results obtained in this study.

Sixth form education has evolved to involve a new modular system approach replacing the old terminal system (Kementerian Pelajaran Malaysia, 2017; Majlis Peperiksaan Malaysia, 2011). In this new system, the study period of one and a half year is divided into three semesters. Students are required to sit for a final exam at the end of every semester instead of a solely terminal examination at the end the study, thus making sixth form education more tertiary-like education system. Future study should explore the readiness of this new cohort of sixth formers.

In addition, in term of English language ability, future research should consider collecting students’ English ability based on results from standardised examination such as scores from MUET, TOEFL, or IELTS. Furthermore, future studies should also include students from other study pathways considered for entrance into the public universities such as polytechnic’s and community colleges’ diploma program, Cambridge A-Levels, IB diploma and other equivalents qualifications

5.7 Summary of the study

The following is a summary of the study.

Statement of Problem	Research Objectives	Literature Review
Past studies in the Western context have shown that students' readiness for tertiary learning can be better predicted using multiple instigative variables rather than just public examination results (Robbins et al., 2004; Pohl, 2012). However, empirical research in this area is generally lacking in the context of Malaysian education system. Although extensive researches have been attempted to improve the measures of tertiary education readiness, the issue of getting student ready for tertiary education has not been conclusively resolved due to the complexity and diverse variables involved (Bailey & Dynarski, 2011).	i) To determine students' level of psychosocial readiness for tertiary learning among pre-university student indicated by PRITES.	Pohl (2012) developed and establish a tool, Personal Readiness Evaluation for Postsecondary (PREP) to measure the factors that would influence student's readiness for tertiary learning.
	ii) To investigate gender differences in students' level of psychosocial readiness for tertiary learning.	Latifah Ismail (2014) reported that female students were different from their male counterparts in terms of learning attitude, effort or mindset and inspiration vision. Female students tend to work harder, are more dedicated, and more determined in their study as compare with male students. In the study of entrepreneurship, Idris (2010) finds that Malay female entrepreneurs are more innovative than the Chinese, though the latter have a higher ego orientation index.
	iii) To investigate ethnicity differences in students' level of psychosocial readiness for tertiary learning.	Previous studies show the influence of ethnicity in the academic performance (Jackson et al. 2011), mathematics performance (Liew, 2009), perception on Islamic Business courses (Mohd Hizam-Hanafiah, Muhammad Nasri-Hussain & Ahmad Azman Mokhtar, 2015).
	iv) To investigate study pathways differences in students' level of psychosocial readiness for tertiary learning.	A study conducted by Hafizah et al. (2011) at the Department of Electrical, Electronic and System Engineering, UKM, found that the students current CGPA in the university are independent of their entrance CGPA. However, Hazilah Mohd Amin et al. (2013) showed how students from different study pathways performed while at the Faculty of Information Science and Technology, UKM.
	v) To investigate the differences of psychosocial readiness of students for tertiary learning based on their language spoken at home.	Previous researches done in Malaysia found mixed results in term of the relationship between language proficiency and academic performance. While some researchers found that English language proficiency will have an impact on learners overall academic performance (Arshad et al., 2008; Nurhazlini et al., 2015), other researchers found that English ability has no direct or little effects on overall academic performance (Arsad, Bauniyamin & Manan, 2014).

Method of data collection	Instrument	Analysis Method	Findings as compared to literature review	Contribution of the study
Cross-sectional survey, Convenience sampling method, PRITES instrument	Section A, Section B, 71 items	Mean and Standard Deviation	The overall readiness for tertiary learning was computed as 2.97, indicating a moderate level of readiness among the participating students.	PRITES was developed based on the literature. It consisted of 80 items based on items used in past Western studies on psychosocial factors impacting on students' readiness for tertiary learning. These items were reviewed and adapted to local context by the researcher and other research members comprising of academics at the Faculty of Cognitive Sciences and Human Development and Pre-University Centre (Unimas), School of Education (UMS) and Department of Mathematics (UiTM Kota Samarahan, Sarawak). The pilot study data was analysed using an Exploratory Factor Analysis (EFA) to explore the validity and structure of the research instrument. EFA was conducted to identify the latent factor structure of PRITES. a. Contribution to knowledge A traditional method of understanding students' readiness is based on students' academic performance. PRITES was developed to measure students' psychosocial dimensions that may influence their study performance in tertiary program in Malaysia context. Availability of PRITES would offer an avenue for higher education providers to obtain information on the level of readiness of tertiary learning among students which could be used to design appropriate interventions. b. Contribution to Education Practitioner Findings of the study may help the educators in tertiary level to understand the issue of tertiary readiness among the students in term of psychosocial dimension. PRITES could assist in accessing students' psychosocial competencies. c. Contribution to Methodology PRITES could be replicated for future studies to collect student's readiness level which provides insight for educators, researchers, policy makers to determine proper intervention for improving student readiness for tertiary learning.
	Section C 1 item	Independent sample t-Test	Female students were readier for tertiary education in the dimension of Academic Self Efficacy, Self-Regulated Learning, Effort and Mindset and Motivation and Goal Orientation.	
	Section C 1 item	One-way ANOVA, Tukey HSD	Liew (2009) found that the non-Malay performed better academically in mathematics. However, this study did not investigate academic achievement but found that the non-Malay students had lower psychosocial readiness for tertiary learning compared to the Malay students. Thus, future study should investigate psychosocial readiness and academic achievement of students of different study disciplines and ethnicity	
	Section C 1 item	One-way ANOVA, Tukey HSD	Students in pre-university and matriculation program were readier than students in sixth form	
	Section C 1 item	Independent sample t-Test	There were no significant differences in the students' overall level of readiness for tertiary learning and the five psychosocial dimensions based on their use of English at home.	

Limitation	Recommendation
Data was collected at a specific point of time from a pool of participants, thus, it may not identify the cause and effect of a person readiness. Convenience sampling could lead to and the sample may not be representative of the population. Furthermore, studies that are experimental or longitudinal in nature should be carried out in the future to further verify the results obtained in this study. Secondly, this study did not involve all secondary schools with sixth forms. Rural secondary schools were not sampled in this study. Thus, the findings may not be representative of rural sixth form students. Students studying in other equivalent educational institutions such as polytechnics, community colleges and vocational colleges and private foundation programs, were also not considered in this study. Thirdly, only five psychosocial dimensions were considered in this study Other dimensions such as, social involvement and financial support which are also important for tertiary learning readiness were not considered. In addition, students' psychosocial readiness was investigated in tandem with their academic achievement in this study. However, this study did not investigate academic achievement but found that the non-Malay students had lower psychosocial readiness for tertiary learning compared to the Malay students. Thus, future study should investigate psychosocial readiness and academic achievement of students of different study disciplines and ethnicity. Data collection was done in the beginning of the semester, and students were just "back to school" for a new semester. Thus, students may still be in a "holiday mood" and not prepared for academic study.	The limitation of the study offered some recommendations for future research. This study was carried out as a cross-sectional study with data collected at a single time. It also did not control for extraneous variables such as tuition and social economic status that might influence the results. Therefore, more studies that are experimental or longitudinal in nature should be carried out in the future to further verify the results obtained in this study. Sixth form education has evolved to involve a new modular system approach replacing the old terminal system (Kementerian Pelajaran Malaysia, 2017; Majlis Peperiksaan Malaysia, 2011). In this new system, the study period of one and a half year is divided into three semesters. Students are required to sit for a final exam at the end of every semester instead of a solely terminal examination at the end the study, thus making sixth form education more tertiary-like education system. Future study should explore the readiness of this new cohort of sixth formers. In addition, in term of English language ability, future research should consider collecting students' English ability based on results from standardised examination such as scores from MUET, TOEFL, or IELTS. Furthermore, future studies should also include students from other study pathways considered for entrance into the public universities such as polytechnic's and community colleges' diploma program, Cambridge A-Levels, IB diploma and other equivalents qualifications. Future studies should also include students from other study pathways considered for entrance into the public universities such as polytechnic's and community colleges' diploma program, Cambridge A-Levels, IB diploma and other equivalents qualifications.

5.8 Conclusion

This study investigated the psychosocial readiness among pre-university students in Sabah and Sarawak, specifically among those at sixth forms, matriculation centres and public university pre-university study pathways. Moreover, this study also investigated differences in psychosocial readiness dimensions based on the students' demographic characteristics such as gender, ethnicity, type of study pathways and English language use.

The findings showed moderate level of tertiary learning readiness among the pre-university students. The results indicated that intervention should be implemented to enhance students' readiness for tertiary education. Public universities should consider including psychosocial readiness screening as part of its admission process. However, further study is required to explore the complex nature of tertiary education readiness and its relationship with academic achievement to develop comprehensive intervention strategies.

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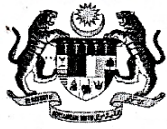
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APPENDICES

Appendix A: Permission letter from Educational Planning and Research Division Ministry of Education.



BAHAGIAN PERANCANGAN DAN PENYELIDIKAN DASAR PENDIDIKAN
KEMENTERIAN PENDIDIKAN MALAYSIA
ARAS 1-4, BLOK E-8
KOMPLEKS KERAJAAN PARCEL E
PUSAT PENTADBIRAN KERAJAAN PERSEKUTUAN
62604 PUTRAJAYA.

Telefon : 03-88846591
Faks : 03-88846579

Ruj. Kami : KP(BPPDP)603/5/JLD. 16(18)
Tarikh : 14 Februari 2014

DR Hasbee Hj Usop
Fakulti Sains Kognitif dan Pembangunan Manusia
Universiti Malaysia Sarawak
94300 Kota Samarahan
Sarawak

Tuan/Puan,

Kelulusan Khas Untuk Menjalankan Kajian Di Sekolah, Institut Perguruan, Jabatan Pendidikan Negeri Dan Bahagian-bahagian Di Bawah Kementerian Pendidikan Malaysia

Adalah saya dengan hormatnya diarah memaklumkan bahawa permohonan tuan/puan untuk menjalankan kajian bertajuk :

"Development and Validation of Personal Readiness Index for Tertiary Education (PRITE)" diluluskan.

2. Kelulusan ini adalah berdasarkan kepada cadangan penyelidikan dan instrumen kajian yang tuan/puan kemukakan ke Bahagian ini. **Kebenaran bagi menggunakan sampel kajian perlu dipohon dari Ketua Bahagian/Pengarah Pendidikan.**

3. Sila tuan/puan kemukakan ke Bahagian ini senaskhah laporan akhir kajian/laporan dalam bentuk elektronik berformat Pdf di dalam CD bersama naskhah *hardcopy* setelah selesai kelak. Tuan/Puan juga diingatkan supaya mendapat kebenaran terlebih dahulu daripada Bahagian ini sekiranya sebahagian atau sepenuhnya dapatan kajian tersebut hendak dibentangkan di mana-mana forum atau seminar atau diumumkan kepada media massa.

Sekian untuk makluman dan tindakan tuan/puan selanjutnya. Terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menurut perintah,


(DR. HJ. HABANI BIN DARUS)

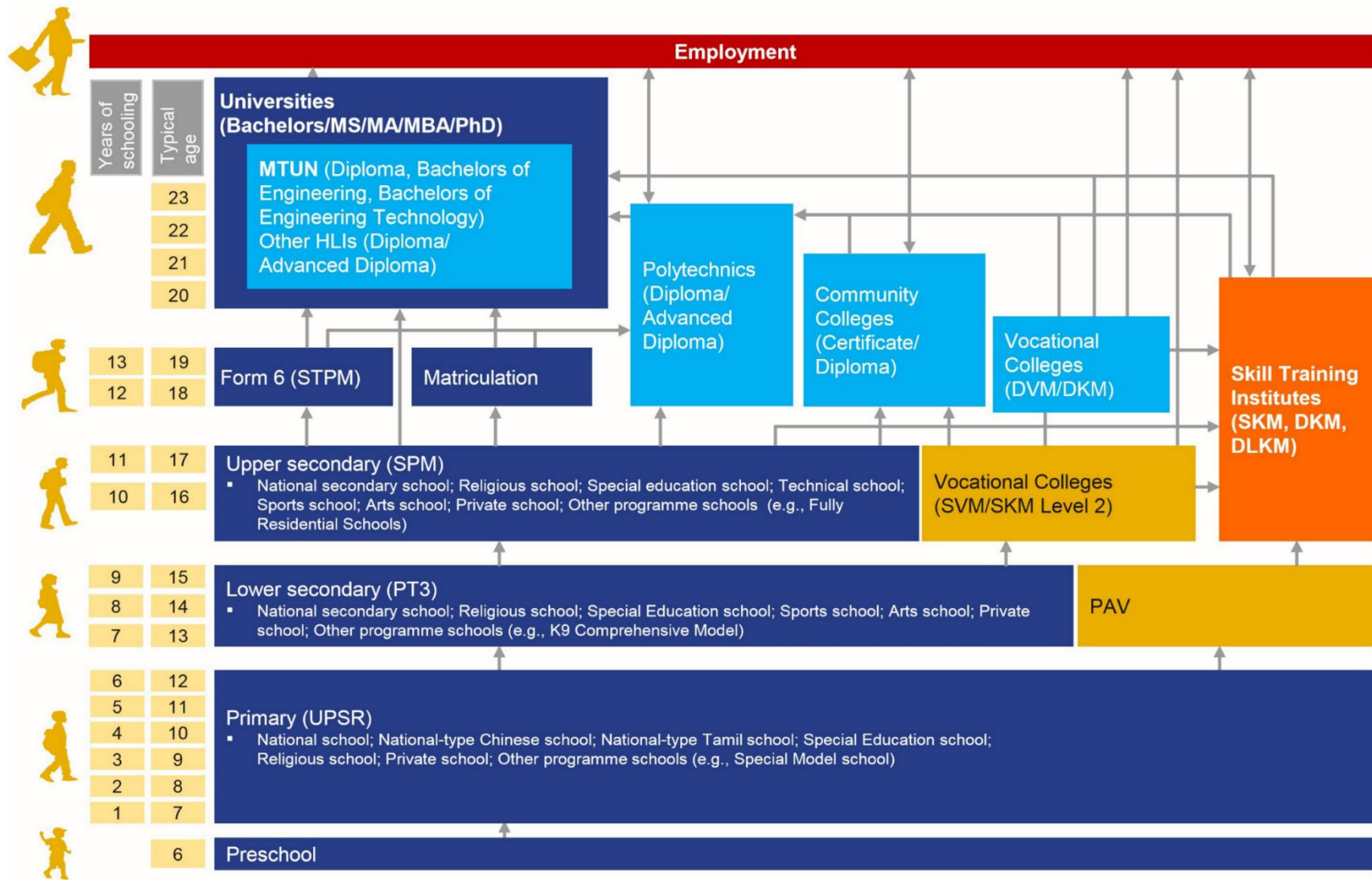
Ketua Sektor
Sektor Penyelidikan dan Penilaian
b.p. Pengarah
Bahagian Perancangan dan Penyelidikan Dasar Pendidikan
Kementerian Pendidikan Malaysia

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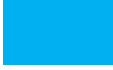
Pengarah
Jabatan Pendidikan Negeri Sabah

Pengarah
Jabatan Pendidikan Negeri Sarawak

Appendix B: Malaysia Education Pathways.



Legend

	Academic pathways and institutions
	MOE higher education TVET institutions
	MOE basic education TVET institutions
	TVET institutions of other ministries and agencies

TVET Technical and Vocational Education and Training

DKM Diploma Kemahiran Malaysia

DLKM Diploma Lanjutan Kemahiran Malaysia

DVM Diploma Vokasional Malaysia

HLI Higher learning institution

MTUN Malaysian Technical University Network

PAV Pendidikan Asas Vokasional

PT3 Penilaian Tahap 3

SKM Sijil Kemahiran Malaysia

SPM Sijil Pelajaran Malaysia

STPM Sijil Tinggi Pelajaran Malaysia

SVM Sijil Vokasional Malaysia

UPSR Ujian Penilaian Sekolah Rendah