

2011

Exploring factors affecting part-time students academic success in Malaysian polytechnic institutions

Norhayati Ibrahim
Iowa State University

Follow this and additional works at: <http://lib.dr.iastate.edu/etd>

 Part of the [Bioresource and Agricultural Engineering Commons](#)

Recommended Citation

Ibrahim, Norhayati, "Exploring factors affecting part-time students academic success in Malaysian polytechnic institutions" (2011).
Graduate Theses and Dissertations. 10060.
<http://lib.dr.iastate.edu/etd/10060>

This Dissertation is brought to you for free and open access by the Graduate College at Iowa State University Digital Repository. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

Exploring factors affecting part-time students' academic success in Malaysian polytechnic institutions

by

Norhayati Ibrahim

A dissertation submitted to the graduate faculty
In partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY

Major: Industrial and Agricultural Technology

Program of Study Committee:

Steven A. Freeman, Major Professor

Charles V. Schwab

Steven K. Mickelson

Mack C. Shelley

Loren W. Zachary

Iowa State University

Ames, Iowa

2011

Copyright © Norhayati Ibrahim, 2011. All rights reserved.

TABLE OF CONTENTS

	LIST OF FIGURES	v
	LIST OF TABLES	vi
	ABSTRACT	vii
CHAPTER 1.	INTRODUCTION	1
	Introduction	1
	Background	3
	Problem Statement	4
	The Purpose of Study	5
	Research Questions	6
	Significance of the Study	6
	Literature Review	7
	Definition and Characteristics of Adult Learners	7
	Motivation for Returning To School	9
	Adult Learning	9
	Factors Affecting Adult Learners' Academic Success	11
	Demographic Factors	12
	Employment Factors	14
	Motivational Factors	15
	Learning Approaches	16
	Methods	17
	Instrument	18
	Population	21
	Procedure	22
	Data Analysis	24
	Limitations of Study	26
	Definition of Terms	26
	Dissertation Organization	28
	References	29
CHAPTER 2.	IDENTIFYING PREDICTORS OF ACADEMIC SUCCESS FOR PART-TIME STUDENTS AT POLYTECHNIC INSTITUTES IN MALAYSIA	36
	Abstract	36
	Introduction	37
	Literature Review	39
	Definition of Adult Learners in Postsecondary Education	39
	Demographic Predictors of Academic Success	40
	Employment Factor	42
	Research Questions	44
	Methodology	44
	Population	44

	Design and Procedure	45
	Data Analysis	48
	Results	48
	Discussion	54
	Conclusions	58
	Acknowledgements	59
	References	60
CHAPTER 3.	EXPLORING THE IMPACT OF WORK EXPERIENCE ON PART-TIME STUDENT'S ACADEMIC SUCCESS IN MALAYSIAN POLYTECHNICS	65
	Abstract	65
	Introduction	66
	Literature Review	68
	Adult Learners in Higher Education	
	Education	68
	Motivational Factors and Learning Approaches	70
	Research Questions	72
	Methods	72
	Measures	72
	Participants	73
	Procedure	76
	Data Analysis	76
	Results	78
	Participants	78
	Data Screening	79
	Factor Analysis	79
	Descriptive Statistics and Pearson's Correlations	82
	Path Model	84
	Discussion	86
	Motivation Factor and Learning Approach Pattern	86
	Relationship between Motivational Factors and Learning Approaches	86
	Path Model	88
	Research Implications	89
	Practical Implications	90
	Conclusions	91
	Acknowledgements	93
	References	94
CHAPTER 4.	SUMMARY, CONCLUSIONS, RECOMMENDATIONS	98
	Overview of the Study	98
	Summary of the Findings	98
	Recommendations for Future Research and Administrators	101

APPENDIX A. SURVEY INSTRUMENT	103
APPENDIX B. APPROVAL LETTER FROM HUMAN SUBJECT INSTITUTIONAL REVIEW BOARD	114
APPENDIX C. APPROVAL LETTER FROM THE DEPARTMENT OF POLYTECHNIC AND COLLEGE COMMUNITY COLLEGE EDUCATION	124
APPENDIX D. STATISTICAL RESULTS	125
ACKNOWLEDGEMENTS	137

LIST OF FIGURES

Figure 1. Path Model for the impact of work experience on part-time students' academic success	85
--	----

LIST OF TABLES

CHAPTER 2.

Table 1. Description of variables	47
Table 2. Summary of respondent's demographic characteristics ($N=614$)	49
Table 3. Summary of respondent's employment and academic success ($N=614$)	50
Table 4. Academic success (CGPA) regressed on demographic and employment variables ($N=609$)	53

CHAPTER 3.

Table 1. Description of items by construct	74
Table 2. Inter-factor correlation matrix	80
Table 3. Factor loadings based on a maximum likelihood analysis with direct oblimin rotation for 32 items from perceived influence of work experience on academic learning ($N = 610$)	81
Table 4. Mean, standard deviation, and reliabilities and Pearson's correlation coefficients of the variables	83

ABSTRACT

This study investigated the role of demographic characteristics and employment variables in predicting adult learners' academic success as defined by their cumulative grade point average (CGPA). The impact of work experience on students' academic success was further examined. The sample consisted of 614 part-time students from four polytechnic institutions in Malaysia.

Demographic characteristics studied included respondent's age, gender, marital status, number of children, first-generation status, and financial resources. Employment variables assessed were number of years working, job relatedness to the program, job satisfaction, and monthly salary. The study identified six factors to measure the students' perceived influence of work experiences—positive belief, negative belief, intrinsic motivation, learning orientation, deep learning approach, and surface learning approach.

Results indicated that being an older student, being female, paying for their own education, and having high job satisfaction were statistically significant predictors of part-time students' academic success. Academic success was affected moderately by the negative belief and weakly by intrinsic motivation. Positive belief was significantly influenced by deep learning approach, intrinsic motivation, and learning orientation. Negative belief was influenced by surface learning approach.

Understanding the effects of demographic characteristics, employment variables, and the perceived influence of work experience on students' academic success might help administrators and educators to effectively design teaching and learning strategies, assessment methods, and motivational and intervention programs to enhance part-time students' academic success.

CHAPTER 1. INTRODUCTION

Introduction

Higher education is becoming a necessity to many adults as the worldwide economy continues to shift from manufacturing to knowledge-based industries (Chao, DeRocco, & Flynn, 2007; Desjardin, Rubenson, & Milana, 2006; United Nations Educational, Scientific, and Culture Organization [UNESCO], 2009). Chao et al. (2007) and Ritt (2006) emphasized that most of the fastest growing jobs required higher education qualification. Furthermore, higher education credentials provide adults with not only increased new knowledge and improved skills but also broader economic and social benefits (Chao et al., 2007; Ritt, 2006). Recent data from the Organization for Economic Co-operation and Development (OECD) (2010) indicate that from 1995 to 2008, the enrollment for 20- to 29-year-olds in tertiary education increased at a rate exceeding 12% for most of the OECD countries. This growing number of adult participants in higher education has led to a greater attention to widening access and understanding their diverse needs.

As one of the developing countries in Asia, Malaysia has placed significant emphasis on providing wider opportunities for adult learners to continue their education at higher education institutions. In 2010, the working age population (15-64) in Malaysia was expected to increase to 65.7 % with a median age of 26.7 years (Bax & Hassan, 2003). However, only 14% of the labor force in Malaysia possesses tertiary education qualifications (Bax & Hassan, 2003). This implies that there is a need to create more opportunities for adult learners to improve their education and training so they can face the challenges of a knowledge-based economy. To facilitate adults' participation, Malaysian higher education

institutions offer full-time and part-time enrolment with a broad range of instructional settings such as distance, online, and virtual learning. These modes of learning offer more flexibility and greater autonomy for learners (NHERI, 2007). The 50% increase of part-time students in higher education from 2002 to 2007 shows that adult learners have become an integral component of the Malaysian higher educational system (Ministry Of Higher Education [MOHE], 2009).

Research on adult students reveals a highly diverse population, making their academic experiences in higher education different from younger students (Donaldson & Graham, 1999; Graham, Donaldson, Kasworm, & Dirx, 2000; Horn & Carroll, 1996; Kasworm, 1990; Kasworm, Polson, & Fishback, 2002; Merriam, 2005). Adults' academic learning and life experiences, such as social and work responsibilities, are closely intertwined, as Kasworm (1990) highlighted, "Adults do not live apart; rather, they are a part of their world" (p. 366). Arguably, the diversity and complexity of adult students' life backgrounds and experiences have a considerable impact on their academic success in higher education (Cantwell, Archer, & Bourke, 2001; Graham et al., 2000; Rogers, 2002; UNESCO, 2009). How adults perceive and translate the connections between their varied experiences, and how the institution facilitates these connections, could play a vital role in determining their success in college.

With the hope of effectively fostering and facilitating academic learning in adult students, this quantitative study was designed to explore factors affecting their academic success. The factors included demographic characteristics, employment variables, and students' perceptions of the impact of their work experiences on their academic learning. This study was conducted in a part-time weekend program at Malaysian polytechnic

institutions. Part-time students were chosen because reports from other countries showed that they were more likely to experience lower degree-completion rates or higher drop-out rates. For instance, the Higher Education Funding Council in England (2009) reported that 59% of part-time students in United Kingdom Higher Education Institutions from the 1996-97 cohort failed to complete their degrees. Similarly, in the United States, 73% of part-time students from the 2000-01 cohort left universities without degrees (Chen & Carroll, 2007). Thus, determining factors that could facilitate or impede part-time students' academic success should become a major concern in the Malaysian higher education system.

Background

Polytechnics in Malaysia were established by the government to prepare the nation's semi-professional workforce. These institutions provide tertiary level technical education and training in engineering, commerce, and hospitality fields. To provide more opportunities for workers to upgrade their academic qualifications, polytechnics started offering a part-time program in the year 2000 (Bax & Hassan, 2003). This program offers similar courses and adopts the same assessment method as that for full-time students, except that classes and practical activities in the workshop are held on weekends. The duration for the part-time diploma program is two years, compared to one year for full-time students (Bax & Hassan, 2003).

Starting in 2000 with a pioneering group of 171 students at one of the polytechnics in Shah Alam, the enrollment for the part-time program eventually spread to thirteen institutions and increased to 2,972 students in 2009 (Department of Polytechnic and Community College Education [DPCCE], 2009). Almost 80% of the part time students in polytechnic institutions have at least one of the following characteristics: working, over the

age of 25, married, and have children (personal communication, December 3, 2008). These characteristics are consistent with those used by the National Center for Education Statistics (Horn & Carroll, 1996) to define adult learners, also known as *nontraditional* students, in higher education.

Problem Statement

It is imperative for the Malaysian polytechnic educational system to understand its particular population of adult students and to develop “an institutional database to define both global and specific adult student profiles” (Kasworm, 2002, p. 20). Moreover, adult needs are not universal but specific to each country, culture, economy, and social environment (UNESCO, 2009). Adult learners may have different expectations for their learning and different needs due to their maturity and the complexity of their daily lives (Graham et al., 2000; Kasworm et al., 2002).

Despite the concerted effort by institutions to provide adults with wider access to formal higher education, there are no clear policies, organizations, or bodies that govern the development of adult learners in Malaysia (Mohamad & Associates as cited in English, 2009). Adult students are not yet recognized because no reliable data exists regarding their participation in higher education and its relation to their background information. Thus, there is a tendency to ignore adults’ diverse needs in designing educational programs, teaching and learning strategies, and assessment methods. Consequently, studies in other countries claim that adult learners are often treated like traditional students, who enter higher education immediately after they finish high school (Chao et al., 2007; Pusser et al., 2007; Reay, 2002). It is also largely assumed that they face the same challenges and adopt the same learning

approaches as traditional students. Their life experiences are thought not to have any influence on their academic learning and success.

Very little attention has been given to understanding the impact of adult learners' demographic characteristics, employment variables, motivations, and learning approaches on their academic success in a Malaysian context (NHERI, 2007), particularly for part-time students in polytechnics. Moreover, even though the main motivation for most adults entering higher education is job-related (UNESCO, 2009), there are few studies on the influence of work experience on adult learning in higher education.

The Purpose of the Study

The purpose of this study was to investigate how adult learners' demographic characteristics, employment variables, and work experiences influence their academic success in part-time weekend programs at Malaysian polytechnic institutions. Demographic characteristics included age, gender, marital status, number of children, first-generation status, and financial resources. Employment variables included number of years working, job-relatedness to the program, monthly salary, and job satisfaction. The impact of work experience was investigated through students' motivational aspect and learning approaches. Further analyses were conducted to explore the relationships between motivational factors and learning approaches and how they influence adult learners' academic success. The academic success was measured based on students' cumulative grade point average (CGPA).

Research questions

The research questions explored by this study are:

1. What are the effects of demographic variables on adult part-time students' academic success?
2. What are the effects of employment variables on adult part-time students' academic success?
3. How does work experience influence the academic learning of adult part-time students in the aspects of motivational factors and learning approaches?
4. What is the relationship between adult part-time students' motivational factors, learning approaches, and academic success?
5. How do adult part-time students' perceptions on the impact of their work experiences influence their academic success?

Significance of the Study

This study aims to make a significant contribution to the field of adult learning in higher education in Malaysia, particularly in the polytechnic educational system. In pursuing their academic goals, adult learners encounter a multitude of uncertainties. Attending college means constantly juggling competing priorities. Findings on demographic characteristics, employment variables, motivational beliefs, and learning approaches and how these factors influence their academic learning and academic success could help them to succeed in their academic pursuits.

Moreover, examining the impact of work experience on adult learners' academic learning and success based on their own perceptions provides the needed direction for future

research and policy in incorporating work experience to improve the teaching and learning processes, adult learners' participation, academic performance outcomes, and institutional effectiveness. UNESCO (2009) noted that it was vital to develop a well-articulated policy that addresses adults' needs and characteristics in order to ensure their success.

Furthermore, ensuring the success of adult learners in higher education not only depends on the wider access to learning opportunities but also depends on the design of their educational programs, teaching and learning instructions, and assessment methods.

Understanding the role of adult learners' characteristics, employment variables, and prior experience will allow higher education leaders, administrators, and instructors to effectively design programs to meet adult learners' goals, needs and beliefs. This will encourage their participation as well as enhance their academic performance and persistence.

Additionally, this study provides adult learners seeking higher education credentials with insights on how to negotiate their personal lives and job-related forces, such as new technologies and advanced skills. On the other hand, the findings also enable leaders, administrators, and instructors of higher education to plan for the relevant academic support services that could reinforce adult students' diverse learning approaches.

Literature Review

Definition and Characteristics of Adult Learners

Adult learners in higher education are commonly referred to by various terms, such as *adult students* (Richardson & King, 1998), *nontraditional* students (Bean & Metzner, 1985; Horn & Carroll, 1996; King, 2003; Spitzer, 2000; Taniguchi & Kaufman, 2005), and *mature* students (Richardson, 1994,1995; Trueman & Hartley, 1996). Due to the varying purposes

and contexts of these studies, some researchers defined adult learners based on characteristics such as age, social roles, and traits (Darkenwald & Merriam, 1982; Kim, 2002; Rogers, 2002).

In much of the research, age was extensively used as a definition of adult learners due to biological changes (English, 2009) and psychological development (Cranton, 1992; Rogers, 2002). Based on biological aspects, Bromley, as cited by English (2009), contended that adulthood occurs between the ages of 16 to 20. Furthermore, Cranton (1992) concluded that an individual could be considered an adult learner between the ages of 18 and 29. However, other studies used different minimum ages to define adult learners such as 16 (Kim, Hagedorn, & Williamson, 2004), 21 (Taniguchi & Kaufman, 2005), and 25 (Spitzer, 2000; UNESCO, 2009).

On the other hand, Darkenwald and Merriam (1982) argued that age alone was not a good indicator to describe adult learners, and that independence and social roles should be used. They defined adult learners as those who have “responsibilities for managing their lives” (1982; p. 77) and “left the role of full-time students and assumed the role of worker, spouse, and/or parents, voter, and citizen, which denote independence characteristics of adults” (p. 8).

Horn and Carroll (1996) expanded the definition of adult learners to those who possessed at least one of the following traits: worked full-time, enrolled in a part-time program, experienced delayed enrollment, were financially independent, had dependents other than a spouse, were single parents, or lacked a high school diploma. These characteristics are consistent with almost 80% of the part-time students in polytechnic institutions (personal communication, December 3, 2008). Due to these similar

characteristics, this study adopted the definition of adult learners defined by Horn and Carroll (1996). The term *adult learner* is also used interchangeably with *adult student* and *nontraditional student*.

Motivation for Returning To School

Adult learners enroll in college for many different reasons and at different points in their lives. The research literature suggests different reasons for adult's participation in higher education such as developing self-potential, realizing ambitions, enhancing career options, and increasing reasons for self-satisfaction (Berker & Horn, 2004; Morstain & Smart, 1977; Scala, 1996; UNESCO, 2009). These reasons may vary, according to the different points in life at which they return to school. Morstain and Smart (1977) found those students aged forty-five and younger tended to be more of a life change and career-oriented learner. On the other hand, Scala (1996) discovered that almost 50% of undergraduate respondents over age 60 decided to enroll for enrichment or love for learning. Berker and Horn (2004) further pointed out that working adult undergraduates decided to major in their occupational fields of study. The findings found that career experiences could play a vital role in adults' motivation to enroll in higher education.

Adult Learning

The distinctive characteristics of adult students have led to significantly different learning experiences from traditional students in higher education institutions. Adult students may face difficulties adapting to academic environments in higher education due to a lack of academic skills and resources. Additionally, the system established in higher education favors traditional students (Pusser et al., 2007; Reay, 2002). This could lead to ongoing pressures pertaining to academic learning such as schedule complications,

examination anxieties, and inappropriate assessment methods. Moreover, part-time students often struggle to balance academic demands with their work and family commitments, which could limit their engagement in academic learning.

The diversity and complexity of adults' background characteristics and life experiences have led to an obscure understanding of their academic learning processes. None of the adult learning theories can address all aspects of adult learning. One of the most influential adult learning theories is self-directed learning, which was introduced by Knowles in 1980 (Cranton, 1992). This theory evolved from the concept of andragogy, Knowles' first theory that differentiate adult from children learning processes. In self-directed learning theory, the ability of adults to take control of their own learning was their defining characteristic (Cranton, 1992). Under this theory, it is assumed that adults are capable of setting their own learning goals and objectives, identifying strategies to meet those objectives, finding appropriate learning resources from people or life experiences to carry out a learning plan, and evaluating the accomplishment of the objectives.

These assumptions provided a theoretical basis on the understanding of how adults learn and why they learn. However, Garrison (1997) pointed out that Knowles overlooked the influence of cognitive and motivational learning aspects. He proposed a comprehensive model of self-directed learning by addressing three important components of learning in educational context: "external management (contextual control), internal monitoring (cognitive responsibility), and motivational (entering and task) issues associated with learning" (p.2). He defined self-directed learning as "an approach where learners are motivated to assume personal responsibility and collaborative control of the cognitive (self-

monitoring) and contextual (self-management) processes in constructing and confirming meaningful and worthwhile learning outcomes” (p.2).

Garrison (1997) classified two motivational phases: entering and task motivations. Entering motivation refers to “the process of deciding to participate”, which includes attitude toward self, task and goals, and self-efficacy (p.10). Task motivation refers to “the effort required to stay on task and persist,” which includes intrinsic and extrinsic motivation. He also suggested that self-directed learning could facilitate deep learning approaches when “the learners are intrinsically motivated to assume responsibility for constructing meaning”(p.11).

Factors Affecting Adult Learners’ Academic Success

As previously mentioned, adult learners’ academic success in higher education is affected by a number of factors. Demographic characteristics are among the factors most extensively studied, including age (Cantwell et al., 2001; Hoskins & Newstead, 1997; Kasworm, 1990; Richardson, 1995; Spitzer, 2000), gender (Cantwell et al., 2001; Hoskins & Newstead, 1997; Spitzer, 2000), family responsibilities such as marital status (Reay, 1998) and number of children (Choy, 2002; Horn & Carroll, 1996; Kember, 1999; Taniguchi & Kaufman, 2005), first-generation status (Bui, 2002; Education Resource Institute [ERI] & Institute for Higher Education Policy [IHEP], 1997), and financial support (Fenske, Porter, & Dubrock, 2000; McGivney, 2004).

Of equal importance are employment factors (Brennan, Mills, Shah, & Woodley, 1999; Donaldson & Graham, 1999; Dreher & Ryan, 2000; Graham et al., 2000; Rogers, 2002), motivations (Alderman, 2008; Linnenbrink & Pintrich, 2002; Zimmerman & Schunk, 2008), and learning approaches (Biggs, 1987; Harper & Kember, 1986; Richardson, 1995).

Demographic factors

Age has been identified as positively associated with grades at tertiary levels (Hoskins & Newstead, 1997; Kasworm, 1990; Richardson, 1994; Spitzer, 2000). A study conducted by Richardson (1994) found that mature students' achievement was equivalent to that of non-mature students. Hoskins and Newstead (1997) pointed out that at The University of Plymouth, mature students aged 21 to 25 performed better than traditional students aged 18 to 20. The study concluded that when compared with gender and type of qualification, age was a stronger predictor of academic success for nontraditional, entry-level students.

In examining gender differences, Cantwell et al. (2001) compared traditional and nontraditional students' academic achievement and found that females performed better than males. Nontraditional and female students also achieved higher grades than traditional and male students (Spitzer, 2000) while nontraditional female students performed academically better than traditional female students (Carney-Crampton & Tan, 2002). Hoskins and Newstead (1997) also noted that females marginally showed higher grades than males. Robertson (1991) revealed that female students were more likely to exhibit greater study skills, such as interest, motivation, and time management.

Family responsibilities, such as married life and childcare, often appeared to affect adult students' academic performance, particularly for females (Fairchild, 2003; Johnson, Schwartz, & Bower, 2000; Reay, 1998). However, Reay (1998) revealed that married life was more supportive for females as compared to males. Furthermore, childcare concerns were often reported to be a priority over education (Fairchild, 2003). In fact, having children was found to be negatively associated with degree completion and persistence (Choy, 2002; Kember, 1999; Horn & Carroll, 1996; Taniguchi & Kaufman, 2005). Regardless of studies

indicating the struggles to balance academic demands and family responsibilities (Home, 1998; Padula, 1994), nontraditional female students achieved higher grades than males (Spitzer, 2000) and traditional female students (Carney-Crampton & Tan, 2002).

Researchers have also noted differences between first- and continuing-generation students in academic achievement. First-generation students were defined as students whose parents had no college education (Ishtani, 2006; National Center for Educational Statistics [NCES], 1998; Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). Compared to continuing-generation, first-generation students were more likely to have low family income with more dependents (Inman & Mayes, 1999; NCES, 1998; Terenzini et al., 1996). Thus, they were more likely to seek part-time enrollment and work full-time (NCES, 1998). These students were often associated with low achievement and psychological unpreparedness (Bui, 2002; ERI & IHEP, 1997) along with lower family and peer support (ERI & IHEP, 1997; Hsaio, 1992; Terenzini et al., 1996). First-generation students were also found to be at a higher risk of having lower grades or not completing their studies (Ishtani, 2006; Terenzini et al., 1996)

Financial resources were one of the most often stated factors determining adults' persistence and success in higher education (Community College Survey of Student Engagement Report [CCSSE], 2008). Many students decided to further their studies through a part-time program because of financial obligations. CCSSE reported that almost 45% of the participants responded *likely* and *very likely* that lack of finances caused them to withdraw from class or college. Furthermore, McGivney (2004) found those with high financial difficulties tend to have low retention or achievement, and Fenske et al. (2000) found that

students who paid their own tuition tended to have the lowest retention rates after the first year of enrollment, compared to those who received financial aid.

Employment factors

Employment is a main factor differentiating part-time students from full-time students. Work experiences of part-time students are typically viewed as continually enriching and contributing to their learning process. Bourner et al., as cited by Brennan et al. (1999), argued that part-time students could concurrently relate their work experience to their academic learning. Therefore, they could constructively apply their job knowledge and skills to their learning, or vice versa. This advantage could reinforce their academic understanding as well as enhance their academic success, as Rogers (2002, p. 63) suggested:

...the development of intelligence seems to be dependent more on the amount of educational experience one has received and on the subsequent use of learning skills in one's occupations than on any basic learning ability inherited or developed when young.

Because most adults report that job-related reasons lead to their participation in higher education (Desjardins et al., 2006; UNESCO, 2009), they should have clear career goals. Consequently, they are more prepared and motivated to learn, particularly if the program is related to their occupational field. In interviews with successful mature students, Reay, Ball, and David (2002) discovered that positive characteristics such as determination, commitment, and adaptability helped adult students to persist and succeed in their studies.

Furthermore, Dreher and Ryan (2000) argued the possibility of students with work experience have a better chance to succeed in their studies. Challenges and problems faced in the workplace make them more easily to link and make connections between their academic

learning and their job knowledge and skills, as compared to students with no work experience. These experiences may contribute to greater maturity and motivation to persist and succeed in their academic learning (Graham et al., 2000; Spanard, 1990). On the other hand, Dreher and Ryan (2000) suggested that having work experience that is unrelated to their studies may not be beneficial to students' academic achievement.

In the Adult Learners' College Outcome model, Donaldson and Graham (1999) also emphasized the potential roles of prior experiences to affect the academic outcomes of adult students. Prior experiences were defined as previous academic experiences as well as life experiences from their work, family, and other social roles. The model included prior experiences and personal biographies, such as external factors, that influence four other variables: psycho-social and value orientation, adult cognition, life-world environment, and connecting classroom. Three of these factors (adult cognition, life-world environment, and connecting classroom) directly affected the college outcome. This model clearly demonstrates that adults' prior experiences influence their classroom learning and academic success. In fact, Graham et al. (2000) tested the model and emphasized the importance of prior experiences to adult students' academic success and persistence.

Motivational factors

Consistent with Garrison's comprehensive self-directed learning model, motivational factors (Alderman, 2008; Linnenbrink & Pintrich, 2002; Zimmerman & Schunk, 2008) and learning approaches (Biggs, 1987; Harper & Kember, 1986; Richardson, 1995) were found to be pertinent to students' academic learning.

The concept of motivation explains the reasons students engage in particular actions and persist toward achieving their goals (Alderman, 2008). According to social-cognition

theory, motivational factors such as learners' beliefs about their efforts, competencies, and goals affect their academic achievement (Alderman, 2008). Motivation research has shown a number of motivational constructs that affect learners' academic success such as self-efficacy beliefs, task value, intrinsic motivation, extrinsic motivation, and learning orientation (Garrison, 1997; Linnenbrink & Pintrich, 2002; Zimmerman & Schunk, 2008). Self-efficacy beliefs focus on learners' beliefs about their competences to perform a task or activity (Linnenbrink & Pintrich, 2002). Task value refers to the perceptions of the importance of the tasks to learners' goals or future (Zimmerman & Schunk, 2008). Intrinsic motivation stimulates learners to engage in learning internally through feelings of interest, enjoyment, and satisfaction in doing the task or activity (Pintrich, Smith, Garcia, & McKeachie, 1991). In contrast, learners with extrinsic motivation tend to engage in an activity because of external factors such as money or grades. Learning orientation focuses on seeking for opportunities to improve competence or abilities (Pintrich et al., 1991).

Learning approaches

In a number of research studies, learning approaches were found to be associated with academic success (Biggs, 1987; Harper & Kember, 1986; Richardson, 1995). Drawing from students' strategies and motives to accomplish tasks, Biggs (1987) identified two widely used learning approaches: surface and deep. Students with surface approaches focused on meeting the minimal requirements and tended to emphasize memorization of important items without a clear understanding of the contents. Deep-learning students, on the other hand, focused on meaningful understanding of the materials learned, using higher levels of cognitive thinking such as relating to previous knowledge and theorizing about what was learned (Biggs, 1987).

Biggs (1987), Harper & Kember (1986), and Richardson (1995) investigated the study methods of mature students compared to non-mature students in higher education and indicated that mature students were more likely to adopt deep approaches, compared to non-mature students, who were more likely to use a surface approaches. Harper & Kember (1986) further suggested that adult students had advantages over younger students because they were more likely to adopt deep learning approaches promoted by their prior life experiences and were more motivated by intrinsic goals. The study showed that mature students could perform better when they had the ability to relate their experiences to their academic learning.

Research studies also showed that motivational constructs are reciprocally interrelated with learning approaches (Linnenbrink & Pintrich, 2002). Learners with high self-efficacy beliefs, learning goal orientation, intrinsic motivation, and task value were more likely to display deeper learning approaches and better performance (Garrison, 1997; Pintrich & Garcia, 1991; Wolters & Pintrich, 1998). On the other hand, Pintrich and Garcia (1991) found that surface processing strategies were weakly related to both intrinsic and extrinsic motivation.

Methods

This study employed a non-experimental, descriptive, and correlational research design to understand the patterns of adult part-time students' demographic characteristics, employment variables, and perceptions concerning the impact of work experience on their academic learning and to investigate the influence of these factors on students' academic success. Quantitative data collection was employed, using survey methodologies which

allowed the data to be quantified and analyzed using statistical analysis (Gliner & Morgan, 2000).

Instruments

The instrument was designed for cross-sectional survey methodologies. It suited the purpose of the study to measure the perception of the respondents toward the impact of work experience on their academic learning at specific point in time. In addition, a survey was an appropriate instrument because the information gathered was related to perceptions that should be assessed directly from the participants' own responses (Fink, 2009). Furthermore, a survey was relatively cost effective since many questions can be asked to a large population in a short timeframe (Fink, 2009). Surveys are also defined as systematic attempts of collecting data through standardized questions that imposed uniform definitions and similar responses to the participants. Therefore, the measurements were more precise and aligned to the research questions. Using a survey ensured that comparable data could be collected and interpreted.

The survey employed for this study used individual self-administered questionnaires as a data gathering technique. It was important to design questions carefully to ensure that the questionnaire was a useful measurement for the intended construct of the study. Therefore, the researchers adapted a combination of existing questionnaires to develop the question set for this study. Using the existing validated questionnaires from previous research to develop the survey questions helped to ensure that the desired constructs were adequately measured.

The instrument employed consisted of two sections (Appendix A). Section A consisted of four questions, including decisions to return to school, the perceived impact of work experience on academic learning, perceived adaptation during the transition from work

to school, and time usage in a typical seven-day week. The question about decisions to return to school consisted of fourteen items adapted from the existing literature on adult learners' participation in higher education (Berker & Horn, 2004; Scala, 1996) and The National Survey of Recent College Graduates (2006), with modifications to suit the purpose of this study. Given the list of fourteen items, the respondents were asked to write two reasons each for the most and the least influential reasons they had returned to school.

The second question measured the perceived influence of work experience, and it contained thirty-three items measuring the influence of that experience on students' academic learning based on their motivational aspects and learning approaches. The Motivated Strategies for Learning Questionnaires (MLSQ) (Pintrich et al., 1991), the Learning and Studying Questionnaire (LSQ) (Economic and Social Research Council, 2001) and The Approaches and Study Skills Inventory for Students (ASSIST) (Entwistle, 1997) were adapted to specifically focus on the influence of job knowledge and skills on part-time student's academic learning rather than their experience in specific courses. Twenty-four items related to learning approaches, learning orientations, extrinsic motivations, intrinsic motivations, self-efficacy beliefs, and task value were selected and adapted to suit the nontraditional population and the context of the study. Nine additional items were developed by the researchers including four items on negative beliefs, four items on positive beliefs, and one item on deep learning approach. Participants were asked to respond to each statement using a five-point Likert-type scale (1=strongly disagree, 2=slightly disagree, 3=unsure, 4=moderately agree, and 5=strongly agree).

The perceived adaptation variable in question 3 measured the respondent's experience during the transition from work to school using a composite of thirteen items adapted from

the forty-items Career Transition Inventory French version (Fernandez, Fouquereau, & Heppner, 2008). The items used a four-point scale range: 1= very little, 2= some, 3= quite a bit, and 4= very much. Individuals with high scores adapt better during the transition. Question 4 consisted of six items based on the National Survey of Student Engagement (2008) and was used for assessing the time use for a typical seven-day week.

Section B included questions related to demographic factors, academic information, and employment information. There were six demographic variables: gender, age, marital status, number of children, first-generation status, and financial resources. Gender was coded with 1 for male and 0 for female. Age was measured in years. Marital status was assessed as *single, married, or divorced*. Number of children was determined using four categories from *no children to more than four*. First-generation status was identified using parents' educational level consisting of six levels: from *did not complete high school to completed a doctoral program*. Financial support was assessed using five categories: *support from parents, spouse, and relatives; loans from a financial institution; loans from the government; loan from an employer, and employment earnings*.

Academic information enquired was related to academic achievement using six levels of the student's cumulative grade point average (CGPA) score, current semester, and part-time program. The employment variables included the salary information based on the response to four categories of monthly income level ranging from *below Malaysian Ringgit (MYR) 1,000 to above 3,000*, the number of years working with four categories from *none to more than 10 years*, job designation, and job satisfaction. Job relatedness to the educational program was determined by comparing the job designation and program enrolled. The judgment of relatedness was based on the researcher's previous experience of teaching and

managing part-time programs. For example, job designations such as technician, machinist, electrician, mechanic, fitter, and welder were labeled as job-related to the respective engineering programs. Similarly, those who worked as clerks or were involved in administrative and business work were designated in a job-related category to the commerce program.

Academic success was measured using students' cumulative grade point average (CGPA). The CGPA for each participant was extracted from the copies of semester academic reports obtained from the examination coordinator in the selected polytechnic institutions. These data included students' identification numbers, courses enrolled in, grades for each course, semester GPA, and CGPA.

The questionnaire used dual language, English and Malay, to increase clarity during the collection of data. The translation was done by a graduate student from Iowa State University and a lecturer from one of the polytechnic institutions in Malaysia. Both of them were native Malay speaker.

Population

The population for this study was students enrolled in part-time programs at four polytechnic institutions in Malaysia. These polytechnics had more part-time students compared to others, and constituted almost 60% of the total part-time student population in Malaysian polytechnics (DPCEE, 2009). The selected population represented diploma-level students in their second to final semester enrolled in five part-time programs in technical education (electrical engineering, mechanical engineering, civil engineering, information technology, and commerce). These students were selected because they had at least one semester of academic learning experience as nontraditional students. With the experience of

at least one semester of studying while working, these students could provide a broader perspective of the impact of work experience on their academic learning. First-semester students were excluded because they had limited academic learning experience and no CGPA score, which was used as a measure for academic success.

A total of 614 students (58% response rate) from five part-time programs in technical education (electrical engineering, mechanical engineering, civil engineering, information technology, and commerce) returned the questionnaire. The sample consisted of 437 (71.5%) males and 174 (28.5%) females. The respondents' ages ranged from 20 to 49 years (mean=25.5).

Procedure

Formal approval for conducting the study was obtained from both the Iowa State University Human Subject Institutional Review Board (IRB) (Appendix B) and from the Director of the Department of Polytechnic and Community College Education in Malaysia (Appendix C). The names and contact numbers of each program's coordinator were obtained from each polytechnic website. The coordinator of each part-time program was contacted by telephone and a follow-up email. The researcher provided a brief explanation regarding the purpose of the study and the required information related to student lists, academic advisor lists, class schedules, and students' semester academic reports one month before conducting the survey. A face-to-face meeting was arranged at each polytechnic with the coordinator of the part-time program to discuss the process of questionnaire distribution.

The questionnaires were hand-delivered to all part-time students in the study. They were administered during students' scheduled classes either by the researcher or their academic advisor. These two methods were decided based on the number of part-time

students in each polytechnic and also on time limitations, as the part-time classes were conducted only during the weekend. Thus, the academic advisors distributed questionnaires in one polytechnic that had more than 200 part-time students to ensure the questionnaires could be delivered to all students in two days. The researcher distributed questionnaires in three polytechnics that had part-time students numbering less than 200. The hand-delivered distribution was chosen to increase the response rate and account for the time limitations of the researcher and part-time students.

A letter of introduction was attached to each questionnaire. This letter informed the participants that: (1) the project involved research; (2) participation was voluntary; (3) the participant could skip any questions they did not feel comfortable answering; and (4) measures would be used to ensure the confidentiality of data collected in the research. The participants were given time to read the letter of introduction before they responded to the questionnaires. They were given approximately thirty minutes of class time to complete the questionnaires. The completed questionnaires were returned directly to the researcher or academic advisor in class using a provided envelope. Consent was implied if the participants returned the questionnaires.

Participants were asked to write their identification numbers on the questionnaire for the purpose of assessing their CGPAs from their semester academic reports. Copies of the semester academic reports were obtained from the examination coordinator at each polytechnic. To ensure confidentiality and anonymity, names of students were deleted from the academic reports. The researcher matched the survey data with the academic reports using participant's identification numbers.

Data Analysis

Research questions 1 and 2

A standard multiple regression was conducted using demographic and employment variables as predictors and academic success as the outcome variable. Analysis was performed using SPSS version 17.0. The block regression analysis was conducted on two models. Model 1 included all the demographic variables (age, gender, number of children, marital status, financial resources, and first-generation status) and model 2 added employment variables (number of years working, job relatedness to the program, monthly salary, and job satisfaction). Finally, all significant predictors in Model 2 were regressed on academic success. The equation of academic success was determined based on the final regression. The level of significance for all analyses was set at .05.

Research questions 3, 4, and 5

The data gathered from this survey were analyzed for data screening, multivariate assumption tests, factor structures, reliability, correlations among variables, and relational model testing using Statistical Packages for Social Sciences (SPSS) Version 17.

Data were screened using SPSS frequencies analysis to account for the accuracy of data entry, missing data, skewness, kurtosis, and frequency histogram. This information was used to evaluate the three important multivariate assumptions: the absence of outliers, normality, and linearity.

Factor analysis was performed to ensure valid measurement for the influence of work experience on academic learning variables based on students' perceptions with no specified a priori restrictions. Exploratory factor analysis (EFA) is best applied for scale development and to evaluate the pattern of relationships among items (Tabachnick & Fidell, 2007).

Furthermore, EFA helps to minimize scale overlapping and improve internal consistency. Factor analysis was initially conducted using principal component extraction with varimax rotation to estimate the factorability of the correlation matrices, the absence of multicollinearity and singularity, the Kaiser measures of sampling adequacy, the number of factors, and the inter-factor correlations. The maximum likelihood extraction method was used for further analysis because it provided a stricter test of relationships among variables, which happens because it requires a positive definite covariance matrix (Tabachnick & Fidell, 2007).

The final decision on the number of factors to retain was based on the Kaiser criterion, percent of variance explained, number of items in each factor, and interpretability of the factor solution (Tabachnick & Fidell, 2007). Cronbach's Alpha, the measure of internal consistency, was used to determine the reliability of the measuring instruments (Gliner & Morgan, 2000).

The linear relationships between factors of the perceived influence of work experience and students' academic success were evaluated using Pearson's correlation analysis, ' r '. The relationships among variables that were identified as statistically significant were used for the relationship model.

The path analysis technique using AMOS software was used to further investigate the relationships among the variables. The Maximum Likelihood estimation method was chosen because it had been shown to perform reasonably well with multivariate, normally distributed data (Tabachnick & Fidell, 2007). A well-fitted model was determined by examining the chosen indicators: Chi-square model fit (χ^2), the root mean square of error approximation

(RMSEA), the comparative fit index (CFI), and the goodness of fit index (GFI) (Tabachnick & Fidell, 2007).

Limitations of the Study

The questionnaire designed for this study only focused on prior work experience and did not take into account other impacts (e.g., life and educational experiences) that might also influence adults' academic learning. Furthermore, the use of existing questionnaires, which were designed for Western cultures, might have made a cultural impact on the responses given by the participants. Distributing and collecting the questionnaires during the participants' class time might have led to time constraints for the participants to really reflect on their academic learning experience. Because this study was based primarily on the respondents' own perceptions, the results might be biased to students' own beliefs and understanding.

Definition of terms

1. Adult learners refer to individuals who acquire new knowledge and skills through systematic educational or training programs after experiencing a delay from their initial high school education. They are differentiated based on age, education and socio-economic background, and social roles (Kasworm, 1990; Kim, 2002; Rogers, 2002). Typically, they are older (aged above 25); lack academic preparation, have parents with no post-secondary education; come from families with lower socio-economic status and minority ethnic groups; and likely are married, have dependents, work full-time, and are financially independent (Chen & Carroll, 2007; Horn &

- Carroll, 1996). Other terms used for adult learners are *non-traditional* and *mature* students.
2. Adult learning refers to the learning process undertaken by adults to acquire new knowledge and skills that may be at variance from the children learning process (Cranton, 1992). Several theories were discussed in this study to describe adult learning and its differences with children learning including *andragogy*, *self-directed learning*, and *comprehensive self-directed learning* (Cranton, 1992; Garrison, 1997).
 3. First-generation college students are students who are the first in their families to attend college (Ishtani, 2006; National Center for Educational Statistics, 1998; Terenzini et al., 1996). Their parents' highest educational attainments are high school level.
 4. Higher education, also known as *tertiary* or *post-secondary* education, is a formal education after high school, secondary education, or in Malaysia, completion of 11 years of basic education (Ministry of Higher Education, 2011). Institutions of higher education include universities, polytechnics, and colleges that award degrees, diplomas, or certificates.
 5. Part-time students are students at higher institutions who enrolled "a course load or educational program that requires less than 75% of a full-time commitment of time and resources" (OECD, 2002).
 6. Semester in a polytechnic system is a six-month period of academic term. There are two semesters in a year. Academic session refers to two admissions in a year, July and January session (etawau.com, 2011). Students who are admitted to the same academic session would follow the same fixed courses for each semester. Students

are identified based on the number of semesters they are enrolled in the institution. For example, if the students in second semester, they are called second semester students.

Dissertation Organization

This dissertation is comprised of four chapters. Chapter 1 addresses the problem, purpose, research questions, significance, and assumptions of the study. The chapter also reviews literature on the definition and characteristics of adult learners, motivating factors for returning to school, theoretical perspective of adult learning, and factors affecting academic success of adult learners. It then outlines the methods of the study describing research design, procedures, and data analysis. Finally, this chapter offers definitions for key terms.

Chapter 2 includes the manuscript that explores the role of demographic characteristics and employment variables in predicting the academic success of part-time students at four polytechnic institutions in Malaysia. This manuscript was formatted for submission to *International Journal of Adult Vocational Education and Technology*.

Chapter 3 consists of the manuscript that examined the perceptions of polytechnic part-time students in Malaysia regarding the influence of work experience on their academic success. This manuscript was formatted for submission to the *Career and Technical Education Research*.

Chapter 4 includes a summary of the research, describes conclusions, and provides direction for future research and practical implications.

References

- Alderman, M. K. (2008). *Motivation for achievement: Possibilities for teaching and learning*. New York: Routledge.
- Bax, M. R. N., & Hassan, M. N. (2003). *Lifelong learning in Malaysia*. IIEP/UNESCO KRIVET International Policy Seminar: Seoul, Korea.
- Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research*, 55(4), 485–540.
- Berker, A. & Horn, L. (2004). Work first, study second: adult undergraduate who combine employment and post secondary enrollment. *Education Statistics Quarterly*, 5(3), 122-134
- Biggs, J.B. (1987). *Student Approaches to Learning and Studying*. Melbourne: Australian Council for Educational Research.
- Brennan, J., Mills, J., Shah, T., & Woodley, A. (1999). *Part-time students and employment: Report of a survey of students, graduates and diplomats*. London: Centre for Higher Education Research & Information, Open University Quality Support Centre.
- Bui, K. V. T. (2002). First-generation college students at a four-year university: Background characteristics, reasons for pursuing higher education, and first-year experiences. *College Student Journal*, 36(1), 3–11.
- Cantwell, R., Archer, J., & Bourke, S. (2001). A comparison of the academic experiences and achievement of university students entering by traditional and nontraditional means. *Assessment and Evaluation in Higher Education*, 26(3), 221–234.
- Carney-Crompton, S., & Tan, J. (2002). Support systems, psychological functioning, and academic performance of nontraditional female students. *Adult Education Quarterly*, 52(2), 140–154.
- Chao, E. L., DeRocco, E. S., & Flynn, M. K. (2007, March). *Adult learners in higher education: Barriers to success and strategies to improve results*. Washington, DC: Employment and Training Administration. Retrieved from http://wdr.doleta.gov/research/FullText_Documents/Adult%20Learners%20in%20Higher%20Education1.pdf.
- Chen, X., & Carroll, C. D. (2007). *Part-time undergraduates in postsecondary education: 2003-04*. Washington, DC: National Center for Education Statistics.

- Choy, S. (2002). *Nontraditional undergraduates: Findings from the condition of education, 2002*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- Community College Survey of Student Engagement (CCSSE). (2008). *High Expectations and High Support*. Austin, TX: The University of Texas at Austin, Community College Leadership Program.
- Council for Adult and Experiential Learning. (2008). *Adult learning in focus: National and state-by-state data*. Chicago, IL: author. Retrieved from http://www.cael.org/pdf/State_Indicators_Monograph.pdf.
- Cranton, P. (1992). *Working with adult learners*. Middletown, OH: Wall & Emerson.
- Darkenwald, G., & Merriam, S. (1982). *Adult education: Foundations of practice*. New York: Harper Collins.
- Dart, B., Burnett, P., Boulton-Lewis, G., Campell, J., Smith, D., & McCrindle, A. (1999). Classroom learning environments and students' approaches to learning. *Learning Environments Research*, 2(2), 137-156.
- Department of Polytechnic and Community College Education (DPCCE). (2009). *Quick facts*. Retrieved from <http://www.portal.mohe.gov.my/portal/page/portal/.../IPT/.../QuickFacts1009.pdf>
- Desjardins, R., Rubenson, K., & Milana, M. (2006). *Unequal chances to participate in adult learning: International perspectives*. Paris: UNESCO Institute for Educational Planning.
- Donaldson, J. E., & Graham, S. (1999). A model of college outcomes for adults. *Adult Education Quarterly*, 50(1), 24-40.
- Dreher, G. F., & Ryan, K. C. (2000). Prior work experience and academic achievement among first-year MBA students. *Research in Higher Education*, 41(4), 505-525.
- Economic and Social Research Council. (2001). *Learning and Studying Questionnaires*. Retrieved from <http://www.etl.tla.ed.ac.uk/questionnaires/LSQ.pdf>
- Education Resources Institute (ERI), & Institute for Higher Education Policy (IHEP). (1997). *Missed opportunities: A new look at disadvantaged college aspirants*. Boston and Washington, DC: Author. Retrieved from ERIC database. (ED420257)
- English, L. M. (2009). *International encyclopedia of adult education*. National Centre for Vocational Education Research (NCVER).

- Entwistle, N. J. (1997). *The approaches and study skills inventory for students (ASSIST)*. Edinburgh: Center for Research on Learning and Instruction, University of Edinburgh.
- etawau.com. (2011). *Polytechnics in Malaysia*. Retrieved from <http://www.etawau.com/edu/KolejPublic/Polytechnics.htm>
- Fairchild, E. E. (2003). Multiple roles of adult learners. *New Directions for Student Services*, 2003(102), 11–16.
- Fenske, R. H., Porter, J. D., & Dubrock, C. P. (2000). Tracking financial aid and persistence of women, minority, and needy students in Science, Engineering, and Mathematics. *Research in Higher Education*, 41(1), 67–94.
- Fernandez, A., Fouquereau, E., & Heppner, M.J. (2008). The Career Transition Inventory: A psychometric evaluation of a French version (CTI-F). *Journal of Career Assessment*, 16(3), 384-398.
- Fink, A. (2009). *How to conduct surveys: a step-by-step guide*. Los Angeles: SAGE.
- Garrison, D. R. (1997). Self-directed learning: Toward a comprehensive model. *Adult Education Quarterly*, 48(1), 18-33.
- Gliner, J. A., & Morgan, G. A. (2000). *Research methods in applied settings: An integrated approach to design and analysis*. New Jersey: Lawrence Erlbaum Associates.
- Graham, S. W., Donaldson, J. F., Kasworm, C., & Dirkx, J. (2000). [*The experiences of adult undergraduate students—what shapes their learning?*](#) Retrieved from ERIC database. (ED440275)
- Harper, G. & Kember, D. (1986). Approaches to study of distance education students, *British Journal of Educational Technology*, 17(3), 212-222.
- Higher Education Funding Council in England. (2009). *Part-time first degree study: Entry and completion*. Retrieved from http://www.hefce.ac.uk/pubs/hefce/2009/09_18/
- Horn, L. J., & Carroll, C. D. (1996). *Nontraditional undergraduates: Trends in enrollment from 1986 to 1992 and persistence and attainment among 1989-90 beginning postsecondary students. Postsecondary Education Descriptive Analysis Reports. Statistical Analysis Report*. Washington, DC: U.S. Government Printing Office.
- Home, A. M. (1998). Predicting role conflict, overload and contagion in adult women university students with families and jobs. *Adult Education Quarterly*, 48(2), 85–97.

- Hoskins, S. L., & Newstead, S. E. (1997). Degree performance as a function of age, gender, prior qualifications and discipline studied. *Assessment and Evaluation in Higher Education*, 22(3), 317.
- Hsaio, K. P. (1992). First-generation college students. ERIC Digest. Los Angeles, California: ERIC Clearinghouse for Junior Colleges. Retrieved from ERIC database. (ED351079)
- Inman, W. E., & Mayes, L. D. (1999). The importance of being first: Unique characteristics of first-generation community college students. *Community College Review*, 26(4), 3–22.
- Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *The Journal of Higher Education*, 77(5), 861–885.
- Johnson, L. G., Schwartz, R. A., & Bower, B. L. (2000). Managing stress among adult women students in community colleges. *Community College Journal of Research and Practice*, 24(4), 289–300.
- Kasworm, C. (1990). Adult undergraduates in higher education: A review of past research perspectives. *Review of Educational Research*, 60(3), 345–375.
- Kasworm, C. (2002). African American Adult Undergraduates: Differing Cultural Realities. *Journal of Continuing Higher Education*, 50(1), 10–29.
- Kasworm, C., Polson, C., & Fishback, S. (2002). *Responding to adult learners in higher education*. Malabar, FL: Krieger Publishing Company.
- Kember, D. (1999). Integrating part-time study with family, work and social obligations. *Studies in Higher Education*, 24(1), 109–124.
- Kim, K. A. (2002). Exploring the meaning of “nontraditional” at the community college. *Community College Review*, 30(1), 74–89.
- Kim, K., Hagedorn, M., & Williamson, J. (2004). *Participation in adult education and lifelong learning 2000-01*. (NCES 2004-50). U.S. Department of Education, National Center for Education Statistics, Washington, DC: U.S. Government Printing Office. Retrieved from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004050>
- King, J. E. (2003). Nontraditional attendance and persistence: The cost of students’ choices. *New Directions for Higher Education*, 2003(121), 69–84.
- Knowles, M. S. (1989) *The Making of an Adult Educator. An autobiographical journey*, San Francisco: Jossey-Bass.

- Linnenbrink, E. A. & Pintrich, P. R. (2002). Motivation as an enabler for academic success. *School Psychology Review*, 31(3), 313-327.
- Linnenbrink, E. A. & Pintrich, P. R. (2003). The role of self-efficacy beliefs in students' engagement and learning in the classroom. *Reading and Writing Quarterly*, 19(2), 119-137.
- McGivney, V. (2004). Understanding persistence in adult learning. *Open Learning: The Journal of Open and Distance Learning*, 19(1), 33-46.
- Merriam, S. B. (2005). How adult life transitions foster learning and development. *New Direction for Adult and Continuing Education*, 2005(108), 3-13.
- Ministry of Higher Education, Malaysia (MOHE). (2009). *Laporan Statistik pelajar kementerian pengajian tinggi Malaysia*. Retrieved from http://www.mohe.gov.my/web_statistik/index.htm
- Ministry of Higher Education, Malaysia (MOHE). (2011). *Higher education in Malaysia*. Retrieved from http://www.portal.mohe.gov.my/portal/page/portal/ExtPortal/Agencies/Study_in_Malaysia/National_Higher_Education_System
- Morstain, B., & Smart, J. (1977). A motivational typology of adult learners. *The Journal of Higher Education*, 48(6), 665-679.
- National Higher Education Research Institute (NHERI). (2007). *The effectiveness of academic programmes at higher educational institutions (HEIs) towards lifelong learning*. Retrieved from <http://www.usm.my/ipptn/fileup/Lifelong%20Learning.pdf>
- National Center for Educational Statistics (NCES). (1998). *First-generation students: Undergraduates whose parents never enrolled in postsecondary education*. Washington, DC: U.S. Department of Education. Retrieved from ERIC database. (ED420235)
- National Survey of Recent College Graduates. (2006). *Survey Instrument*. Retrieved from http://www.nsf.gov/statistics/srvyrecentgrads/surveys/srvyrecentgrads_2006.pdf
- National Survey of Student Engagement. (2008). *Survey Instrument*. Retrieved from http://nsse.iub.edu/html/survey_instruments_2008.cfm
- Organization for Economic Co-operation and Development (OECD). (2002). *Education at glance*. Retrieved from <http://www.docstoc.com/docs/11019052/Education-at-a-Glance-2009-OECD-Indicators>

- Organization for Economic Co-operation and Development (OECD). (2010). *Highlights from education at glance 2010*. Retrieved from http://www.oecd-ilibrary.org/education/highlights-from-education-at-a-glance-2010_eag_highlights-2010-en
- Padula, M. A. (1994). Reentry women: A literature review with recommendations for counseling and research. *Journal of Counseling and Development*, 73(1), 10–16.
- Pintrich, P. R., & Garcia, T. (1991). Student goal orientation and self-regulation in the college classroom. In M. Maehr & P.R. Pintrich, *Advances in motivation and achievement: Goals and self-regulatory processes*, vol. 7. Greenwich, CT: JAI Press.
- Pintrich, P. R., D. A. F. Smith, T. Garcia, & W. J. McKeachie. (1991). *Manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. Ann Arbor, MI: National Center for Research to Improve Postsecondary Teaching and Learning.
- Pusser, B., Breneman, D. W., Gansneder, B. M., Kohl, K. J., Levin, J. S., Milam, J. H., et al., (2007, March). *Returning to learning: Adults' success in college is key to America's future*. Indianapolis: Lumina Foundation for Education. Retrieved from <http://www.luminafoundation.org/publications/ReturntolearningApril2007.pdf>
- Reay, D. (1998). 'Always knowing' or 'never being sure': Institutional and familial habituses and higher education choice. *Journal of Education Policy*, 13(4), 519–529.
- Reay, D. (2002). Class, authenticity and the transition to higher education for mature students. *Sociological Review*, 50(3), 398–418.
- Reay, D., Ball, S., & David, M. (2002). "It's taking me a long time but I'll get there in the end": Mature students on access courses and higher education choice. *British Educational Research Journal*, 28(1), 5-19.
- Richardson, J. T. E. (1994). Mature students in higher education: I. A literature survey on approaches to studying. *Studies in Higher Education*, 19(3), 309–323
- Richardson, J. T. E. (1995). Mature students in higher education: II. An investigation of approaches to studying and academic performance. *Studies in Higher Education*, 20(1), 5–17.
- Richardson, J. T. E., & King, E. (1998). Adult students in higher education: Burden or boon? *Journal of Higher Education*, 69(1), 65–89.
- Ritt, E. (2008). Redefining tradition: Adult learners and higher education. *Adult Learning*. Retrieved from <http://eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ860772>.

- Robertson, D. L. (1991). Gender differences in the academic progress of adult undergraduates: Patterns and policy implications. *Journal of College Student Development*, 32(6), 490–496.
- Robotham, D., & Julian, C. (2006). Stress and the Higher Education Student: a Critical Review of the Literature. *Journal of Further and Higher Education*, 30(2), 107- 117.
- Rogers, A. (2002). *Teaching adults*. Berkshire: Open University Press, McGraw-Hill House.
- Scala, M.A. (1996). Going back to school: Participation motives and experiences of older adults in an undergraduate classroom. *Educational Gerontology*. 22(8), 747-773.
- Spanard, J. A. (1990). Beyond intent: Re-entering college to complete the degree. *Review of Educational Research*, 60(3), 309-344.
- Spitzer, T. M. (2000). Predictors of college success: A comparison of traditional and nontraditional age students. *NASPA Journal*, 38(1), 82–98.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon.
- Taniguchi, H., & Kaufman, G. (2005). Degree completion among nontraditional college students. *Social Science Quarterly*, 86(4), 912–927.
- Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, P. M. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education*, 37(1), 1–22.
- Truemen, M., & Hartley, J. (1996). A comparison between the time-management skills and academic performance of mature and traditional-entry university students. *Higher Education*, 32(2), 199–215.
- United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Lifelong Learning (UIL). 2009. *Global report on adult learning and education*. Hamburg: UNESCO Institute for Lifelong Learning. Retrieved from <http://unesdoc.unesco.org/images/0018/001864/186431e.pdf>
- Wolters, C., and Pintrich, P. R. (1998). Contextual differences in student motivation and self-regulated learning in mathematics, English, and social studies classrooms. *Instructional Science*, 26(1), 27–47.
- Zimmerman, B. J. & Schunk, D. H. (2008). *Motivation: An essential dimension of self-regulated learning*. In Schunk, D. H. & Zimmerman, B. J. Motivation and self-regulated learning: Theory, research and applications. New York: Lawrence Erlbaum Associates.

CHAPTER 2. IDENTIFYING PREDICTORS OF ACADEMIC SUCCESS FOR PART-TIME STUDENTS AT POLYTECHNIC INSTITUTES IN MALAYSIA

A paper accepted by *International Journal of Adult Vocational Education and Technology*¹

Norhayati Ibrahim^{2,3}, Steven A. Freeman, Mack C. Shelley

Abstract

A central challenge for higher education today is to understand the diversity and complexity of nontraditional students' life experiences and how these factors influence their academic success. To better understand these issues, this study explored the role of demographic characteristics and employment variables in predicting the academic success of part-time students at four polytechnic institutes in Malaysia. Demographic characteristics studied included respondent's age, gender, marital status, number of children, first-generation status, and financial resources. Employment variables assessed were number of years working, job relatedness to the program, job satisfaction, and monthly salary.

A total of 614 part-time students completed the survey. Results indicated that being an older student, being female, paying for their own education, and having high job satisfaction were statistically significant predictors of part-time students' academic success. Understanding the effects of demographic characteristics and employment variables on students' academic success might help administrators and educators to develop teaching and learning processes, support services, and policies to enhance part-time students' academic success.

¹ This paper appears in *International Journal of Adult Vocational Education and Technology* authored by Norhayati Ibrahim, Steven A. Freeman, Mack C. Shelley. Copyright 2011, IGI Global, www.igi-global.com. Posted by permission of the publisher.

² Primary researcher and author

³ Author for correspondence

Keywords: *Academic Success, Higher Education, Malaysia, Nontraditional Students, Part-time Students, Work Experience.*

Introduction

To remain competitive in a rapidly changing economy, many adults are continuously acquiring new knowledge and skills to improve their competencies in their workplace (Desjardin, Rubenson, & Milana, 2006; UNESCO, 2009). Ritt (2008) emphasized that the fastest growing jobs require a higher education qualification. In addition, possessing higher education credentials enables adults to gain broader economic and social benefits such as higher income over a lifetime (Brennan, Mills, Shah, & Woodley, 1999; Ritt, 2008). An increasing number of adults participating in higher education has led to greater attention focused on understanding the diversified needs of adults in higher education.

Malaysia, one of the developing countries in Asia, has placed an emphasis on providing wider opportunities for adults to continue their education in such higher education institutions as public and private universities, polytechnics, and community colleges (National Higher Education Research Institute [NHERI], 2007). In 2010, the working-age population (15–64 years) in Malaysia was expected to increase to 65.7% with the median age of 26.7 years (Bax & Hassan, 2003). However, only 14% of the labor force in Malaysia possesses tertiary education qualifications (Bax & Hassan, 2003). This implies a need for more opportunities for adult learners to improve their education and training to meet the challenges of a knowledge-based economy.

To facilitate adults' participation, higher education institutions in Malaysia offer full-time and part-time enrollment with a broad range of e-learning instructional settings that offer learners more flexibility and greater autonomy (NHERI, 2007). Part-time enrollment

seems to be the most preferred program in higher education, particularly for working adults because they can seek higher qualifications while still maintaining their jobs as well as their earnings (Chen & Carroll, 2007; Tuttle, 2005).

Polytechnic institutions are one segment in the Malaysian higher education system that provides tertiary level technical education and training. In 2000, these institutions began to offer part-time programs to adults to upgrade their academic qualifications (Bax & Hassan, 2003). These part-time programs adopt similar courses and the same assessment methods used for traditional full-time students, except that classes and practical activities in the workshop are held on weekends. The duration for the part-time diploma program is two years, compared to one year for full-time students (Bax & Hassan, 2003). From 2000 to 2009, a dramatic increase of part-time enrollment occurred. The part-time student population grew from 171 to 2,972 students (Department of Polytechnic and Community College Education [DPCCE], 2009).

As adult learners, part-time students may have different expectations of their learning and different needs due to their maturity and the complexity of their daily lives (Graham, Donaldson, Kasworm, & Dirx, 2000; Kasworm, Polson, & Fishback, 2002). Treating them like traditional students, who enter higher education immediately after finishing high school, means that educators often neglect to take into account the influence of their diverse needs and life experiences on their academic learning and success.

The purpose of this quantitative study, therefore, was to examine whether demographic characteristics and employment variables predict academic success of students in a part-time weekend program at four Malaysian polytechnic institutes. Previous research has shown that the diversity and complexity of adult learners' life experiences have a

considerable impact on their academic success in higher education (Cantwell, Archer, & Bourke, 2001; Graham et al., 2000; Rogers, 2002; UNESCO, 2009). This area remains unexamined, particularly in the context of the polytechnic educational system in Malaysia.

Literature Review

Definitions of Adult Learners in Higher Education

Adult learners in higher education are commonly referred to by various terms such as adult students (Richardson & King, 1998), nontraditional students (Bean & Metzner, 1985; Horn & Carroll, 1996; King, 2003; Spitzer, 2000; Taniguchi & Kaufman, 2005), and mature students (Richardson, 1994, 1995; Trueman & Hartley, 1996). Focusing on the different purposes and contexts of studies, some researchers define adult learners based on characteristics such as age, social roles, and traits (Darkenwald & Merriam, 1982; Kim, 2002; Rogers, 2002).

Age is extensively used as a definition of adult learners due to biological changes (English, 2009) and psychological development (Cranton, 1992; Rogers, 2002). Based on biological aspects, Bromley (as cited in English, 2009) stated that adulthood occurs between the ages of 16 to 20. Furthermore, Cranton (1992) concluded that an individual could be considered an adult learner between the ages of 18 to 29. Other studies, however, defined adult learners by different minimum ages such as age 16 (Kim, Hagedorn, & Williamson, 2004), age 21 (Taniguchi & Kaufman, 2005), and age 25 (Spitzer, 2000; UNESCO, 2009).

On the other hand, Darkenwald and Merriam (1982) argued that age alone was not a good indicator to describe adult learners; independence and social roles also should be used. They defined adult learners as those who have “responsibilities for managing their lives” (1982, p. 77) and “left the role of full-time students and assumed the role of worker, spouse,

and/or parents, voter, and citizen, which denote independence characteristics of adults” (p. 8).

Horn and Carroll (1996) expanded the definition of adult learners (also referred to as nontraditional students) to include those who possess at least one of the following traits: work full-time, enroll in a part-time program, experience delayed enrollment, are financially independent, have dependents other than a spouse, are a single parent, and lack academic preparation. These characteristics are consistent with almost 80% of the part-time students in polytechnic institutions (personal communication, December 3, 2008). Due to these similarities in characteristics, this study adopts the definition of adult learners as defined by Horn and Carroll. The term *adult learner* is also used interchangeably with *adult student* and *nontraditional student*.

Demographic Predictors of Academic Success

Demographic characteristics of nontraditional students have been widely discussed to explain their academic performance. For example, previous researchers have examined the effect of age (Cantwell et al., 2001; Hoskins & Newstead, 1997; Kasworm, 1990; Richardson, 1995; Spitzer, 2000); gender (Cantwell et al., 2001; Hoskins & Newstead, 1997; Spitzer, 2000); family responsibilities such as marital status (Reay, 1998) and number of children (Choy, 2002; Horn & Carroll, 1996; Kember, 1999; Taniguchi & Kaufman, 2005); first-generation status (Bui, 2002; Education Resource Institute [ERI] & Institute for Higher Education Policy [IHEP], 1997); and financial support (Fenske, Porter, & Dubrock, 2000; McGivney, 2004) on students' academic success.

Age has been identified as being positively associated with grades at tertiary levels (Hoskins & Newstead, 1997; Kasworm, 1990; Richardson, 1994; Spitzer, 2000). Richardson

(1995) found that mature students achieved slightly higher grades than non-mature students. Hoskins and Newstead (1997) indicated that age was a strong predictor of academic success for nontraditional entry students as compared to gender and type of qualifications.

In relation to gender differences, Cantwell et al. (2001) compared traditional and nontraditional students' academic achievement and found females performed better than males. Nontraditional and female students also achieved higher grades than traditional and male students (Spitzer, 2000). Nontraditional female students performed academically better than traditional female students (Carney-Crampton & Tan, 2002). Robertson (1991) revealed that female students were more likely to exhibit greater study skills including interest, motivation, and time management.

Family responsibilities, such as married life and childcare, often appear to affect adult students' academic performance, particularly for females (Fairchild, 2003; Johnson, Schwartz, & Bower, 2000; Reay, 1998). Reay (1998) revealed, however, that married life was more supportive for females as compared to males. Furthermore, childcare concerns were often reported to be a priority over education (Fairchild, 2003). In fact, having children was found to be negatively associated with degree completion and persistence (Choy, 2002; Horn & Carroll, 1996; Kember, 1999; Taniguchi & Kaufman, 2005). Regardless of studies indicating the struggles to balance academic demands and family responsibilities (Home, 1998; Padula, 1994), nontraditional female students achieved higher grades than males (Spitzer, 2000) and traditional female students (Carney-Crampton & Tan, 2002).

Researchers have noted differences between first- and continuing-generation students in academic achievement. First-generation students are defined as students whose parents had no college education (Ishtani, 2006; National Center for Educational Statistics [NCES],

1998; Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). Compared with continuing-generation students, first-generation students are more likely to have low family income with more dependents (Inman & Mayes, 1999; NCES, 1998; Terenzini et al., 1996). Thus, they are more likely to seek part-time enrollment and work full-time (NCES, 1998). These students are often associated with low achievement and being psychologically unprepared (Bui, 2002; ERI & IHEP, 1997), with less family and peer support (ERI & IHEP, 1997; Hsaio, 1992; Terenzini et al., 1996). They are also found to be at higher risk of having lower grades or not completing their studies (Ishtani, 2006; Terenzini et al., 1996).

Financial resources were one of the most often stated factors determining adults' persistence and success in higher education (Community College Survey of Student Engagement Report [CCSSE], 2008). Many students decided to further their studies through a part-time program because of financial obligations. CCSSE reported that almost 45% of the participants responded *likely* and *very likely* to the statement that lack of finances caused them to withdraw from class or college. McGivney (2004) found those with high financial difficulties tended to have low retention or achievement. Fenske et al. (2000) found that students who paid their own tuition tended to have the lowest retention rates after the first year of enrollment, compared to those who received financial aid.

Employment Factors

Employment is one of the main factors that differentiate part-time students from full-time students. Work experiences of part-time students are typically viewed as continually enriching and contributing to their learning process. Bourner et al. (as cited in Brennan et al., 1999) argued that part-time students could concurrently relate their work experience to their academic learning. Therefore, they could constructively apply their job

knowledge and skills to their learning, or vice versa. This advantage could reinforce their academic understanding as well as enhance their academic success as suggested by Rogers (2002, p. 63):

. . . the development of intelligence seems to be dependent more on the amount of educational experience one has received and on the subsequent use of learning skills in one's occupations than on any basic learning ability inherited or developed when young.

Because most adults indicate that job-related reasons led to their participation in education (Desjardins et al., 2006; UNESCO, 2009), they should have clear career goals. Consequently, they are more prepared and motivated to learn, particularly if the program is related to their occupational field.

Furthermore, Dreher and Ryan (2000) argued the possibility of students with work experience having a better chance to succeed in their studies. Challenges and problems faced in the workplace make them able to more easily link and make connection between their academic learning and their job knowledge and skills as compared to students with no work experience. On the other hand, Dreher and Ryan also suggested that having work experience not related to the studies might not be beneficial to students' academic achievement.

In the model of Adult Learners' College Outcome, Donaldson and Graham (1999) also emphasized the potential role of prior experiences to affect the academic outcomes of adult students. Prior experiences were defined as previous academic experiences as well as life experiences from their work, family, and other social roles. The model included prior experiences and personal biographies such as external factors that influence four other variables—psycho-social and value orientation, adult cognition, life-world environment, and

connecting classroom. Consequently, three factors (adult cognition, life-world environment, and connecting classroom) directly affected the college outcome. This model clearly demonstrated that adults' prior experiences influence their classroom learning and academic success. Graham et al. (2000) tested the model and emphasized the importance of prior experiences to adult students' academic success and persistence.

Research Questions

The importance of demographic characteristics and employment variables in predicting academic success is supported by the literature. Hence, examining the effects of these factors is pertinent to assisting adult learners in acquiring new skills, knowledge, attitudes, and behaviors that facilitate their success in higher education.

Thus, this study sought to explore the predictive power of demographic characteristics and employment variables on part-time students' academic success.

Methodology

Population

The study population consisted of 1,054 part-time diploma students enrolled in second- to final-semester, who enrolled for the July 2009 session (July–December) at four polytechnic institutions in Malaysia. For a diploma program, the applicant must have a polytechnic certificate with at least six months working experience. This population was selected because, by being in a part-time program, it met at least one criterion of nontraditional students defined previously. These students were also diversified in work sectors such as manufacturing, private, and civil service.

A total of 614 students (58% response rate) from five part-time programs in technical education (electrical engineering, mechanical engineering, civil engineering, information

technology, and commerce) completed the questionnaire. The sample consisted of 437 (71.5%) males and 174 (28.5%) females. The respondents' ages ranged from 20 to 49 years (mean=25.5).

Design and Procedure

This study investigated the effect of demographic characteristics and employment variables on part-time students' academic success. Quantitative data collection was employed, using survey methodologies which allowed the data to be quantified and analyzed using statistical analysis (Gliner & Morgan, 2000).

Independent variables. There were six demographic variables—gender, age, marital status, number of children, first-generation status, and financial resources. Gender was coded with 1 for male and 0 for female. Age was measured in years. Marital status was assessed as single, married, or divorced. Number of children was determined using four categories from no children to more than four. First-generation status was identified using parents' educational level consisting of six levels: from *did not complete high school* to *completed a doctoral program*. Financial support was assessed using five categories: *support from parents, spouse, and relatives*; *loan from financial institution*; *loan from government*; *loan from employer*; and *employment earnings*.

The employment variables included salary information based on the response to four categories of monthly income level ranging from *below Malaysian Ringgit (MYR) 1,000* to *above 3,000*; number of years working with four categories from *none* to *more than 10 years*, job designation, and job satisfaction. Job relatedness to program was determined by comparing the job designation and program enrolled. The judgment of relatedness was based on the researcher's previous experience of teaching and managing part-time programs. For

example, job designations such as technician, machinist, electrician, mechanic, fitter, and welder were labeled as job-related to the respective engineering programs. Similarly, those who worked as clerks or were involved in administrative and business work were designated in a job-related category to the commerce program.

Dependent Variable. Academic success was measured using the student's cumulative grade point average (CGPA) extracted from the student's official academic report. A complete listing of variables used in the study is presented in Table 1.

The questionnaire used dual languages, English and Malay, to increase clarity during the collection of data. The translation was completed by two native Malay speakers: a graduate student from Iowa State University and a lecturer from one of the polytechnic institutions in Malaysia. Formal approval from both the Iowa State University Human Subject Institutional Review Board (IRB) and the Director of the Department of Polytechnic and Community College Education was obtained prior to conducting this study.

Questionnaires were personally hand-delivered to each part-time student enrolled in second- to final-semester at the four selected polytechnics during 30 minutes of his/her scheduled class by this researcher or the student's academic advisor. Hand-delivered distribution was chosen to increase the response rate. Surveys were completed during the first and second weeks of the July 2009 academic session.

A letter of introduction was attached to each questionnaire to explain the purpose and the importance of this study and to assure confidentiality of the responses. The letter also noted that the participants were free to not participate and could discontinue the survey at any time. The participants were requested to write their identification numbers on the questionnaire to access their cumulative grade point averages from the official academic

records. The participants were given time to read the letter of introduction before they responded to the questionnaires. Consent was implied if the participants returned the questionnaires.

Table 1. Description of variables

Variables	Description
<u>Demographic Variables</u>	
Gender	Male, Female
Age	18–24, 25–34, 35–44, 45–54, 55–64, 65 years and older
Marital status	Single, Married, Divorced
Number of children	No children, 1–2, 3–4, more than 4
Types of financial resources	Financial support from parents, spouse, other relatives, not to be repaid; loans from financial institutions or government; financial assistance from your employer; earnings from employment
Generation status	First-generation; Continuing-generation
<u>Employment Variables</u>	
Number of years working	None, 1–3; 4–6; 7–10; more than 10 years
Monthly salary	More than MYR 3000; MYR 2001 to MYR 3000; MYR1001 to MYR 2000; MYR 1000 and below
Job satisfaction	<i>Rating scale of 1-4 (1=very dissatisfied, 4=very satisfied)</i>
Job relatedness to program	Related, Not related
<u>Academic Success</u>	Student's Cumulative Grade Point Average (CGPA) extracted from official student's academic report.

The official database of the students' academic reports was obtained from the examination unit at each polytechnic. To ensure participants' confidentiality and anonymity, names of students were eliminated from their academic reports.

Data Analysis

A standard multiple regression was conducted using demographic and employment variables as predictors and academic success as the outcome variable. Analysis was performed using SPSS version 17.0. The block regression analysis was conducted on two models. Model 1 included all the demographic variables (age, gender, number of children, marital status, financial resources, and first-generation status). Model 2 added the employment variables to Model 1 (number of years working, job relatedness to the program, salary, and job satisfaction). Finally, all significant predictors in Model 2 were regressed on academic success. The equation of academic success was determined based on the final regression. The level of significance for all analyses was set at .05.

Results

From the 614 collected surveys, four respondents were excluded from the dataset because their questionnaires had more than 30% nonresponse variables (Tabachnick & Fidell, 2007). The remaining 610 respondents were used for the analysis. Descriptive statistics for demographic and employment predictors as well as outcome variables are presented in Tables 2 and 3. In general, most of the part-time students had work experience of less than 3 years (55.3%), were first generation students (88.2%), were single or married with no children (78.6%), were enrolled in a program related to their job (75.7%), had a salary between MYR 1000 and 2000 (71.0%), and relied on earnings from employment to support their studies (63.3%). Therefore, the categories for demographic and employment

Table 2. Summary of respondents' demographic characteristics (N=614)

Demographic Characteristics	Frequency	Percentage (%)
<i>Gender</i>		
Male	440	71.7
Female	174	28.3
<i>Program^a</i>		
Civil Engineering	190	31.0
Electrical Engineering	171	27.9
Mechanical Engineering	161	26.3
Commerce	75	12.2
Information Technology	16	2.6
<i>Age^{a,b}</i>		
18 – 24 years	319	52.2
25 – 34 years	257	42.1
35 – 44 years	31	3.3
45 – 54 years	4	.7
Mean	25.5	
Standard Deviation	3.969	
<i>Marital Status^a</i>		
Single	432	70.7
Married and Divorced	179	28.7
<i>Number of Children^a</i>		
None	480	78.6
Have children	131	21.4
<i>Financial Resources^a</i>		
Earnings only	386	63.3
Other sources (Parents, spouse, relatives, financial institution, or government)	198	32.5
Unknown	26	4.3
<i>College-generation Status^a</i>		
First-generation	538	88.2
Continuing-generation	47	7.7
Unknown	25	3.9

Note: ^aFrequency and percentage may not equal to total N=614 or 100% due to nonresponse to questions.

^bCategories were used for descriptive purposes only.

Table 3. Summary of respondents' employment and academic success variables (N=614)

Variables	Frequency	Percentage (%)
Employment		
<i>Job Satisfaction^a</i>		
Very dissatisfied	11	1.8
Somewhat dissatisfied	76	12.7
Somewhat satisfied	393	65.7
Very satisfied	118	19.7
<i>Monthly Basic Salary^a</i>		
MYR (Malaysian Ringgit) 1000 and below	61	10.3
MYR 1001 – MYR 2000	422	71.0
Above MYR 2000	86	14.5
Unknown	25	4.2
<i>Occupation^a</i>		
Related	463	75.8
Not related	116	19.2
Unknown	32	5.2
Academic Success		
<i>Cumulative Grade Point Average (CGPA)^{a,b}</i>		
3.75 – 4.00 (mostly A's)	31	5.1
3.25 – 3.74 (about half A's and half B's)	220	36.0
2.75 – 3.24 (mostly B's)	258	42.4
2.25 – 2.74 (about half B's and half C's)	89	14.6
1.75 – 2.24 (mostly C's)	9	1.5
1.25 – 1.74 (about half C's and half D's)	1	2.0
Less than 1.25 (mostly D's or below)	1	2.0
Mean	3.13	
Standard deviation	0.43	

Note: ^aFrequency and percentage may not equal to total N or 100% due to non-response to questions.

^bCategories were used for descriptive purposes only.

variables used for further analysis were reduced to two or three categories as shown in Tables 2 and 3. All missing values for categorical variables were assigned to an additional category labeled as *Unknown*. The mean series procedure was used to replace missing values for continuous data.

Before performing any analysis, the continuous data were screened with the SPSS program for univariate outliers using histograms of standardized dependent variables. One

extreme outlier was found in the CGPA variable and deleted. The descriptive statistics for all the variables did not show severe violation of normality. The skewness and kurtosis of all variables, except age, were within a tolerable range of ± 2 for assuming a normal distribution (Tabachnick & Fidell, 2007). Similarly, the examination of the histograms suggested that the distributions of all variables, except age, were approximately normal. Thus, it was reasonable to assume the assumption of normality was not violated for multiple regression analysis. A curvilinear relationship between age and CGPA was observed from the scatter-plot. Because of this quadratic relationship, age-squared was used for further analysis. Residual scatter-plots showed that assumptions of normality, linearity, and homoscedasticity between predicted scores and errors of predictions were met.

In the first analysis of Model 1, marital status was omitted from the model due to a high correlation with the number of children. The number of children variable was used for further analysis as it represented an increase in responsibilities for taking care of dependents better than marital status. The results of the multiple regression analysis are presented in Table 4. Results indicated Model 1 was statistically significant ($F(7,609)=8.452, p < 0.001$) and accounted for .090 total variance (R^2) in academic success. The results indicated that age-squared ($\beta = 2.78E-4, p = .001$), male ($\beta = -.094, p = .009$), childless ($\beta = .117, p = .013$), and financing education from other sources ($\beta = -.102, p = .003$) were significant demographic predictors for academic success. The first-generation variable was not significant ($\beta = -.053, p = .387$). The effects of interactions were analyzed between all possible pairs of demographic characteristics. None of the interactions showed significant effects. Thus, the analysis continued with no interaction effects.

In Model 2, R^2 increased to .119 ($F(15,609)=5.310, p<.001$), indicating that employment variables accounted for 2.9% of the total variance in academic success after controlling for demographic characteristics. Three employment variables—work experience more than 3 years ($\beta=.051, p=.221$), job relatedness to the program ($\beta=.059, p=.158$), and salary below MYR1000 ($\beta=-.091, p=.448$)—were not significant employment predictors. Job satisfaction, the only employment variable, was marginally positively related to academic success ($\beta=.050, p=.054$). Adding employment variables did reduce the effect of significant demographic variables: age-squared ($\beta=.1.94E-4, p=.030$), educational funding from other sources ($\beta =-.084, p=.016$), and male ($\beta=-.112, p=.002$). The childless variable was not a significant predictor ($\beta=.083, p=.093$). The increase of the adjusted R^2 (.096) value from Model 1 showed the addition of more variables improved the prediction model. The interaction effects among demographic characteristics and employment variables indicated no significant effects. Therefore, the overall model only measured the main effects. The equation for the overall model that includes all significant predictors was:

$$\text{CGPA} = 2.782 - .095\text{Male} + 3.74E-4\text{Age-squared} - .100\text{Financial from other sources} + .066\text{Job satisfaction}$$

This equation implied that with each additional year of age-squared, cumulative grade point average would increase by $3.74E-4$ unit up to a certain age-point and then decrease. On average, males have a CGPA about .095 points lower than females, after controlling for other variables in the model. After controlling all other variables, on average students who rely solely on their earnings to support their education have a CGPA of .100 units higher than those with other sources of financial resources. After controlling all other variables, the

Table 4. Academic success (CGPA) regressed on demographic and employment variables (N=609)

Variables	Model 1		Model 2	
	B	Std error	B	Std error
<i>Age-squared</i>	2.78E-4***	8.137E-5	1.94E-4*	8.893E-5
<i>Gender</i> (Male = 1)	-.094**	.036	-.112**	.036
<i>Number of Child</i> (None = 1)	.117**	.047	.083	.050
<i>Financial Resources</i>				
Other Sources	-.102**	.035	-.084*	.035
Unknown	-.143	.111	-.103	.115
Earnings	0 ^a		0 ^a	
<i>Generation Status</i>				
First-generation	.053	.061	.035	.061
Unknown	.156	.122	.182	.126
Continuing-generation	0 ^a		0 ^a	
<i>Job Satisfaction</i>			.050	.026
<i>Number of years working</i>				
More than 3 years			.051	.042
Unknown			-.057	.140
3 years and below			0 ^a	
<i>Job relatedness to program</i>				
Related			.059	.042
Unknown			-.008	.082
Not related			0 ^a	
<i>Salary</i>				
Below RM1000			-.091	.120
RM 1000-2000			.030	.112
Above RM2000			.063	.118
Unknown			0 ^a	
Intercept	2.977***		2.822***	
R-Squared	.090***		.119***	
Adjusted R-Squared	.079		.096	
F	8.452		5.310	
df	7		15	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$; a = reference group

increase of each unit of job satisfaction would increase .066 unit of CGPA. In the overall model, R^2 was .087 ($F(5,609)=11.60, p<0.001$) for the variation in academic success of part-time students.

Discussion

This study demonstrated the importance of demographic characteristics and employment variables for understanding part-time students' academic success in Malaysian polytechnic institutes. Demographic characteristics ($R^2 = .09$) were determined more reliable predictors of part-time students' academic success as compared to variables of employment ($R^2 = .029$). Four demographic variables—age, gender, number of children, and financial resources—demonstrated significant relationships on students' CGPAs. Specifically, students who were older, female, childless, and financed their own education were more likely to score higher grades.

Age played a significantly positive role in predicting students' academic success. This finding supports previous studies conducted by Hoskins and Newstead (1997), Kasworm (1990), Richardson (1994), and Spitzer (2000). Other researchers argued older students were committed to their studies because they exhibited greater learning goals (Grimes, 1995), self-regulation, and intrinsic motivation (Spitzer, 2000). Presumably older students possess characteristics such as independence more towards problem-centeredness and internal motivation, which is consistent with the self-directed learning concept introduced by Knowles (1980).

Consistent with the findings of previous studies, females were determined to have significantly higher CGPA than males (Cantwell et al., 2001; Carney-Crampton & Tan, 2000; Spitzer, 2000). Perhaps, the greater self-regulation for females in this technology field

explained their higher achievement in academics. In contrast with Fairchild (2003) and Johnson et al.'s (2000) studies, family responsibilities appeared not to affect females' academic achievement.

Students with no children were discovered to have the strongest significant association with academic success. These findings demonstrated the likelihood that caring for dependents limited students' time for studying and affected their academic success. This finding is in agreement with previous studies (Choy, 2002; Horn & Carroll, 1996; Kember, 1999; Taniguchi & Kaufman, 2005).

Financial sources appeared to influence students' academic success. In contrast with Fenske et al.'s (2000) study related to retention rates among adult learners, this study showed that students who financed their education from their earnings tended to have higher grades than those who received financial support from other sources, such as relatives, employers, or loans. It is likely that students who financed their own education were more committed in their studies.

This study suggested that, in general, work experience had significant predictability of students' academic success. This finding indicated that the overall employment variables (number of years working, job relatedness to the enrolled program, job satisfaction, and monthly salary) contributed significantly ($R^2 = .029$) to students' academic success. Individual employment variables, however, were not significant except job satisfaction. Hence, the relationship between work experiences and academic success is complicated and requires further research.

One plausible explanation for this significant predictability of overall employment predictors was job-related reasons that could be students' main motives to enter higher

education. This assumption was made for two reasons: (a) the sample age ranged from 20 to 49, which falls within career-oriented learners as found by Morstain and Smart (1977) and (b) the higher percentage of participants was enrolled in programs related to their occupational field. Job satisfaction was determined marginally significant to predict students' academic success. Perhaps students who were more satisfied with their jobs tended to apply their job's knowledge in their academic learning and were more engaged in their studies.

Adding employment variables to the demographic characteristics reduced the effects of demographic variables and their significant predictability of students' academic performance. This result indicates the potential of significant interactions among employment and demographic variables, which require further investigation.

This research contributes to a better understanding of the effects of the selected demographic and employment variables on part-time students' academic success in Malaysian polytechnic institutes. UNESCO (2009) also supported that each country needs to understand its own characteristics of adult learners to address their needs in developing appropriate policies and programs. The overall factors explained a considerable amount of the variation in students' academic achievement, even though only four variables had significant predictability. These findings provide valuable information to administrators and educators of part-time students to develop policies, teaching and learning processes, and support services to enhance students' performances in their studies. For instance, in the effort to improve students' performances, educators and administrators may design effective motivation programs for younger students, males, and those who receive other types of support to finance their education. Furthermore, these findings indicate females perform

better than males academically. This finding may be used to recruit more females to enroll in part-time programs. In addition, providing a support system such as childcare may also assist to improve students' academic success.

With the obvious limitation of examining only the direct effects of demographic characteristics and employment variables on students' academic success, this study suggests further investigation of the relationships between these factors and how they affect students' academic success. Investigating these relationships could explain what drives them to become successful based on their demographic and employment information.

Another extension for future research might be to include other potential predictors of academic success, such as previous academic achievement, learning approach, and students' motivation to fully explore the relationships among demographic, employment, and part-time students' academic success. In addition, a more comprehensive assessment of employment variables, such as attitudinal aspects related to how students' perceived the influence of their work experiences on their academic learning, would be beneficial. Furthermore, conducting this same study with a broader group of part-time students could enhance the generalization of the findings in the Malaysian context and allow researchers to investigate potential differences due to academic discipline among these part-time students.

In conclusion, providing wider access for adult learners in higher education may not ensure their success in academia. To help them succeed in their academic pursuits, administrators and educators could use this study's findings to effectively develop interventional programs, policies, and teaching and learning processes that suit students.

Conclusions

The following conclusions are based upon the findings of this study:

- Demographic characteristics and employment variables were significant in predicting part-time students' academic success at polytechnic institutions in Malaysia.
- Demographic characteristics—gender, age-squared, number of children, and financial support—were determined significant predictors of students' academic success.
- Employment variables—after controlling demographic characteristics and other employment variables, job satisfaction exhibited significant predictability of students' academic achievement.
- Gender, age-squared, financial support, and job satisfaction were significant predictors in the overall model that included demographic characteristics and employment variables.

Based on this study's discussions and conclusions, the following recommendations for future research and administrators are generated:

- Examine the relationships among demographic characteristics and employment variables to better understand how these factors affect students' academic success.
- Include other potential predictors of academic success, such as learning approach and students' motivations, to fully explore the relationships among demographic, employment, and students' academic success.
- Develop a more comprehensive assessment of employment variables, such as attitudinal aspects related to how students' perceive the influence of their work experiences on their academic learning.

- Conduct this same study to a broader group of part-time students in higher education in Malaysia to enhance the generalization of the findings in a Malaysian context and investigate potential differences due to academic discipline among these part-time students.
- Develop effective interventional programs, policies, and teaching and learning processes based on students' gender, age, financial resources, and job satisfaction. For instance, motivational program for younger and male students could improve their academic achievement.

Acknowledgement

The researcher would like to express her gratitude to the Malaysian Government, Ministry of Higher Education, and Department of Polytechnic Education for their support in funding this project and their cooperation during data collection process.

References

- Bax, M. R. N., & Hassan, M. N. (2003). *Lifelong learning in Malaysia*. IIEP/UNESCO KRIVET International Policy Seminar: Seoul, Korea.
- Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research*, 55(4), 485–540.
- Brennan, J., Mills, J., Shah, T., & Woodley, A. (1999). *Part-time students and employment: Report of a survey of students, graduates and diplomats*. London: Centre for Higher Education Research & Information, Open University Quality Support Centre.
- Bui, K. V. T. (2002). First-generation college students at a four-year university: Background characteristics, reasons for pursuing higher education, and first-year experiences. *College Student Journal*, 36(1), 3–11.
- Cantwell, R., Archer, J., & Bourke, S. (2001). A comparison of the academic experiences and achievement of university students entering by traditional and nontraditional means. *Assessment and Evaluation in Higher Education*, 26(3), 221–234.
- Carney-Crompton, S., & Tan, J. (2002). Support systems, psychological functioning, and academic performance of nontraditional female students. *Adult Education Quarterly*, 52(2), 140–154.
- Chen, X., & Carroll, C. D. (2007). *Part-time undergraduates in postsecondary education: 2003-04*. Washington, DC: National Center for Education Statistics.
- Choy, S. (2002). *Nontraditional undergraduates: Findings from the condition of education, 2002*. Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- Community College Survey of Student Engagement (CCSSE). (2008). *High Expectations and High Support*. Austin, TX: The University of Texas at Austin, Community College Leadership Program.
- Cranton, P. (1992). *Working with adult learners*. Middletown, OH: Wall & Emerson.
- Darkenwald, G., & Merriam, S. (1982). *Adult education: Foundations of practice*. New York: Harper Collins.
- Department of Polytechnic and Community College Education. (2009). *Quick facts*. Retrieved from <http://www.portal.mohe.gov.my/portal/page/portal/.../IPT/.../QuickFacts1009.pdf>

- Desjardins, R., Rubenson, K., & Milana, M. (2006). *Unequal chances to participate in adult learning: International perspectives*. Paris: UNESCO Institute for Educational Planning.
- Donaldson, J. E., & Graham, S. (1999). A model of college outcomes for adults. *Adult Education Quarterly*, 50(1), 24–40.
- Dreher, G. F., & Ryan, K. C. (2000). Prior work experience and academic achievement among first-year MBA students. *Research in Higher Education*, 41(4), 505–525.
- Education Resources Institute, & Institute for Higher Education Policy. (1997). *Missed opportunities: A new look at disadvantaged college aspirants*. Boston and Washington, DC: Author. Retrieved from ERIC database. (ED420257)
- English, L. M. (2009). *International encyclopedia of adult education*. National Centre for Vocational Education Research (NCVER).
- Fairchild, E. E. (2003). Multiple roles of adult learners. *New Directions for Student Services*, 102, 11–16.
- Fenske, R. H., Porter, J. D., & Dubrock, C. P. (2000). Tracking financial aid and persistence of women, minority, and needy students in Science, Engineering, and Mathematics. *Research in Higher Education*, 41(1), 67–94.
- Gliner, J. A., & Morgan, G. A. (2000). *Research methods in applied settings: An integrated approach to design and analysis*. New Jersey: Lawrence Erlbaum Associates.
- Graham, S. W., Donaldson, J. F., Kasworm, C., & Dirkx, J. (2000). *The experiences of adult undergraduate students—what shapes their learning?* Retrieved from ERIC database. (ED440275)
- Grimes, S. K. (1995). Targeting academic program to student diversity utilizing learning styles and learning-study strategies. *Journal of College Student Development*, 36, 422–430.
- Home, A. M. (1998). Predicting role conflict, overload and contagion in adult women university students with families and jobs. *Adult Education Quarterly*, 48(2), 85–97.
- Horn, L. J., & Carroll, C. D. (1996). *Nontraditional undergraduates: Trends in enrollment from 1986 to 1992 and persistence and attainment among 1989-90 beginning postsecondary students*. *Postsecondary Education Descriptive Analysis Reports. Statistical Analysis Report*. U.S. Government Printing Office. Washington, DC 20402-9328.

- Hoskins, S. L., & Newstead, S. E. (1997). Degree performance as a function of age, gender, prior qualifications and discipline studied. *Assessment and Evaluation in Higher Education*, 22(3), 317.
- Hsaio, K. P. (1992). First-generation college students. ERIC Digest. Los Angeles, California: ERIC Clearinghouse for Junior Colleges. Retrieved from ERIC database. (ED351079)
- Inman, W. E., & Mayes, L. D. (1999). The importance of being first: Unique characteristics of first-generation community college students. *Community College Review*, 26(4), 3–22.
- Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the United States. *The Journal of Higher Education*, 77(5), 861–885.
- Johnson, L. G., Schwartz, R. A., & Bower, B. L. (2000). Managing stress among adult women students in community colleges. *Community College Journal of Research and Practice*, 24, 289–300.
- Kasworm, C. (1990). Adult undergraduates in higher education: A review of past research perspectives. *Review of Educational Research*, 60(3), 345–375.
- Kasworm, C., Polson, C., & Fishback, S. (2002). *Responding to adult learners in higher education*. Malabar, FL: Krieger Publishing Company.
- Kember, D. (1999). Integrating part-time study with family, work and social obligations. *Studies in Higher Education*, 24, 109–124.
- Kim, K. A. (2002). Exploring the meaning of “nontraditional” at the community college. *Community College Review*, 30(1), 74–89.
- Kim, K., Hagedorn, M., & Williamson, J. (2004). *Participation in adult education and lifelong learning 2000-01*. (NCES 2004-50). U.S. Department of Education, National Center for Education Statistics, Washington, DC: U.S. Government Printing Office. Retrieved from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004050>
- King, J. E. (2003). Nontraditional attendance and persistence: The cost of students’ choices. *New Directions for Higher Education*, 2003(121), 69–84.
- Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy* (2nd ed.). New York, NY: Cambridge Books.
- McGivney, V. (2004). Understanding persistence in adult learning. *Open Learning: The Journal of Open and Distance Learning*, 19(1), 33–46.

- Merriam, S. B. (2005). How adult life transitions foster learning and development. *New Direction for Adult and Continuing Education*, 108, 3–13.
- Morstain, B., & Smart, J. (1977). A motivational typology of adult learners. *The Journal of Higher Education*, 48(6), 665–679.
- National Higher Education Research Institute (NHERI). (2007). *The effectiveness of academic programmes at higher educational institutions (HEIs) towards lifelong learning*. Retrieved from <http://www.usm.my/ipptn/fileup/Lifelong%20Learning.pdf>
- National Center for Educational Statistics. (1998). *First-generation students: Undergraduates whose parents never enrolled in postsecondary education*. Washington, DC: U.S. Department of Education. Retrieved from ERIC database. (ED420235)
- Padula, M. A. (1994). Reentry women: A literature review with recommendations for counseling and research. *Journal of Counseling and Development*, 73, 10–16.
- Pascarella, E., & Terenzini, P. (1991). *How college affects students*. San Francisco, CA: Jossey-Bass.
- Reay, D. (1998). ‘Always knowing’ or ‘never being sure’: Institutional and familial habituses and higher education choice. *Journal of Education Policy*, 13, 519–529.
- Reay, D. (2002). Class, authenticity and the transition to higher education for mature students. *Sociological Review*, 50(3), 398–418.
- Richardson, J. T. E. (1994). Mature students in higher education: I. A literature survey on approaches to studying. *Studies in Higher Education*, 19(3), 309–323
- Richardson, J. T. E. (1995). Mature students in higher education: II. An investigation of approaches to studying and academic performance. *Studies in Higher Education*, 20(1), 5–17.
- Richardson, J. T. E., & King, E. (1998). Adult students in higher education: Burden or boon? *Journal of Higher Education*, 69(1), 65–89.
- Ritt, E. (2008). Redefining tradition: Adult learners and higher education. *Adult Learning*. Retrieved from <http://eric.ed.gov/ERICWebPortal/recordDetail?accno=EJ860772>
- Robertson, D. L. (1991). Gender differences in the academic progress of adult undergraduates: Patterns and policy implications. *Journal of College Student Development*, 32, 490–496.
- Rogers, A. (2002). *Teaching adults*. Berkshire: Open University Press, McGraw-Hill House.

- Spitzer, T. M. (2000). Predictors of college success: A comparison of traditional and nontraditional age students. *NASPA Journal*, 38(1), 82–98.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon.
- Taniguchi, H., & Kaufman, G. (2005). Degree completion among nontraditional college students. *Social Science Quarterly*, 86(4), 912–927.
- Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, P. M. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education*, 37(1), 1–22.
- Truemen, M., & Hartley, J. (1996). A comparison between the time-management skills and academic performance of mature and traditional-entry university students. *Higher Education*, 32(2), 199–215.
- Tuttle, T. (2005). *Part-time students: Enrollment and persistence in state of Indiana*. Bloomington: Indiana Project on Academic Success (IPAS). Retrieved from <http://www.indiana.edu/~ipas1/PartTimeBriefFinal.pdf>
- UNESCO Institute for Lifelong Learning (UIL). 2009. *Global report on adult learning and education*. Hamburg: UNESCO Institute for Lifelong Learning. Retrieved from <http://unesdoc.unesco.org/images/0018/001864/186431e.pdf>

CHAPTER 3. EXPLORING THE IMPACT OF WORK EXPERIENCE ON PART-TIME STUDENT'S ACADEMIC SUCCESS IN MALAYSIAN POLYTECHNICS

A paper to be submitted to *Career and Technical Education Research*

Norhayati Ibrahim, Steven A. Freeman, Mack C. Shelley

Abstract

The study explored the influence of work experience on part-time students' academic success as defined by their cumulative grade point average. The sample consisted of 614 part-time students from four polytechnic institutions in Malaysia. The study identified six factors to measure the perceived influence of work experiences—positive belief, negative belief, intrinsic motivation, learning orientation, deep learning approach, and surface learning approach.

The results indicated that lower academic success was associated with higher negative belief, lower intrinsic motivation and adopting surface learning approach. Students with deeper learning approach, greater intrinsic motivation, and greater learning orientation tended to perceive higher positive belief. In contrast, students who favored surface learning approaches were more likely to perceive negatively the impact of work experiences on their academic learning. The best-fitted path model demonstrated students' academic success was affected negatively by negative belief and weakly by intrinsic motivation. Other factors did not have significant direct effects on students' academic success.

These findings suggest that the success of part-time students does not rely on their positive attitude alone, but also could depend on the effectiveness of the classroom environment, teaching and learning strategies, and assessment methods.

Keywords: *Adult learner, Learning approaches, Motivational factors, Nontraditional students.*

Introduction

Pressured to enhance employability and quality of life, many adults decide to pursue higher education. The growing trend of adults' participation in higher education is evident in many countries. Recent data from the Organization for Economic Co-operation and Development (OECD) (2010) indicate that from 1995 to 2008, the enrollment for 20- to 29-year-olds in tertiary education increased at a rate exceeding 12% for most of the OECD countries. Adults appear to have a higher preference for part-time over full-time enrollment in higher education, because they can continue to earn a living and take care of dependents (Chen & Carroll, 2007; Pusser et al., 2007).

Despite their increased participation in higher education, adult learners' degree-completion rates remain substantially lower than that of traditional students, particularly for those enrolled part-time. For instance, the Higher Education Funding Council in England (2009) reported that 59% of the part-time students in United Kingdom higher education institutions from the 1996-97 cohort failed to complete their degrees. Similarly, in the United States, 73% of the part-time students from the 2000-01 cohort left universities without degrees (Chen & Carroll, 2007). Thus, determining factors that could facilitate or impede part-time students' academic success have become a major concern in higher education.

In pursuing their academic goals, adult learners assume multiple roles. Conflicting roles between academics and other responsibilities such as family, work, and social life may create new challenges for adults that may limit their academic achievement (Agar, 1990;

Chao, DeRocco, & Flynn, 2007; Fairchild 2003). Arguably, the varying complexity of life's demands and experiences acquired throughout their lives makes each adult unique (Chao et al., 2007; Darkenwald & Merriam, 1982). Their unique characteristics could influence their academic learning differently (Donaldson & Graham, 1999; Graham, Donaldson, Kasworm, & Dirx, 2000; Horn & Carroll, 1996; Kasworm, 1990; Kasworm, Polson, & Fishback, 2002; Merriam, 2005).

Adults bring their life experiences to their classroom (Graham et al., 2000; Kasworm et al., 2002; Merriam, 2005). Therefore, their academic learning and life experiences, such as social and work responsibilities, are closely intertwined as Kasworm (1990) highlighted, "Adults do not live apart; rather, they are a part of their world" (p. 366). Yet, only a very limited array of studies attempts to understand students' perceptions on how life experiences, specifically work experience, could facilitate or hinder their engagement with academic learning.

This area remains unexamined in Malaysia, specifically in the context of the polytechnic educational system. Despite the number of part-time students in higher education increasing by 50% from 2002 to 2007 (Ministry Of Higher Education [MOHE], 2009), very little is known about how adult students use their job knowledge and skills in their academic learning, and how these factors influence their academic success. Thus, to better understand the impact of work experience on part-time students' academic success in Malaysian polytechnics, this study explored various aspects of student motivations and learning approaches to integrate their work experience with academic learning and how these factors influence their academic success. Understanding these relationships may help educators and

administrators develop and implement policies that address the needs of polytechnic adult learners to ensure their success in part-time programs.

Literature Review

Adult Learners in Higher Education

Adult students in higher education can be distinguished from traditional students—who enter higher education directly after graduating from high school—through the aspects of age, education, socio-economic background, and social roles. Predominantly, adult students in higher education are older (aged above 25); lack academic preparation or have parents with no post-secondary education; come from families with lower socio-economic status and minority ethnic groups; and likely are married, have dependents, work full-time, and are financially independent (Chen & Carroll, 2007; Horn & Carroll, 1996).

The distinctive characteristics of adult students have led to significantly different learning experiences from traditional students. Some studies associated adult characteristics with poor time management, limited study skills, lack of financial resources, problems related to work, and family commitments that contributed to their failure to complete studies or their low academic achievement (Abdol Latif & Fadzil, 2007; Agar, 1990; Fairchild, 2003; Horn & Carroll, 1996; Robotham & Julian, 2006). However, some studies argued that adult learners' life experiences, such as work, family, and other social roles, could create opportunities for their success in academic studies (Graham et al., 2000; Rogers, 2002). These experiences may contribute to greater maturity and motivation to persist and succeed in their academic learning (Graham et al., 2000; Spanard, 1990). Adults tend to demonstrate clear learning goals and greater intrinsic motivations than do younger students as many of them enroll in higher education for job-related reasons (Desjardins et al., 2006; United

Nations Educational, Scientific and Cultural Organization [UNESCO], 2009). Additionally, in interviews with successful mature students, Reay, Ball, and David (2002) discovered their positive characteristics, such as determination, commitment, and adaptability to persist and succeed in their studies. Furthermore, Brennan et al. (1999) suggested that by studying while working, part-time students could concurrently relate their work experiences to their academic learning, which could reinforce their academic understanding as well as enhance their academic success.

Knowles in 1980 through the self-directed theory emphasized life experiences as an integral part of adult learning (Cranton, 1992). This theory assumes that adult learning is influenced by their self-control over their own learning goals, their vast learning resources gained from life experiences and social roles, their own learning strategies, and their evaluation of their own performance. Self-directed learning theory has made a major contribution towards understanding how adults learn. However, Garrison (1997) pointed out that Knowles overlooked the influence of cognitive and motivational aspects of learning. Garrison (1997) proposed a comprehensive model of self-directed learning, which focuses on three interconnected components of learning in educational contexts: “external management (contextual control), internal monitoring (cognitive responsibility), and motivational (entering and task) issues associated with learning” (p. 2). Consistent with Garrison’s comprehensive self-directed learning model, motivational factors (Alderman, 2008; Linnenbrink & Pintrich, 2003; Zimmerman & Schunk, 2008) and learning approaches (Biggs, 1987; Harper & Kember, 1986; Richardson, 1995) are delineated as two key factors that impinge upon understanding student learning.

Motivational Factors and Learning Approaches

The concept of motivation explains the reasons students engage in particular actions and persist toward achieving their goals (Alderman, 2008). According to social-cognition theory, motivational factors, such as the learners' beliefs about efforts, competences, and goals, affect their academic achievement (Alderman, 2008). Previous research in motivation has shown a number of motivational constructs that affect learners' academic success:

- Self-efficacy beliefs focus on learners' beliefs about their competences to perform a task or activity (Linnenbrink & Pintrich, 2002, 2003).
- Task value refers to the perceptions of the importance of the tasks to learners' goals or future (Zimmerman & Schunk, 2008).
- Intrinsic motivation stimulates learners to engage in learning through the internal feeling of interest, enjoyment, and satisfaction of doing the task or activity (Pintrich et al., 1991).
- Extrinsic motivation engages learners in an activity because of external factors, such as money or grades (Pintrich et al., 1991).
- Learning orientation focuses on seeking opportunities to improve competence or abilities (Pintrich et al., 1991).

Another important concept needed to understand adult learning is through their approaches to learning (Biggs, 1987). Based on students' strategies and motives to accomplish a task, Biggs (1987) identified two widely used learning approaches—surface and deep. Students with a surface approach focus on meeting the minimal requirements and tend to emphasize memorization of important items without a clear understanding of the contents they learned (Biggs, 1987). On the other hand, deep learning students focus on

meaningful understanding of the materials learned using higher levels of cognitive thinking, such as relating to previous knowledge and theorizing about what is learned (Biggs, 1987).

In a number of research studies, mature students were more likely to adopt a meaning-orientation (deep) approach, compared to non-mature students, who were more likely to use a reproduction-orientation (surface) approach (Biggs, 1987; Harper & Kember, 1986; Richardson, 1995). Harper and Kember (1986) suggested that adult students had advantages over younger students because they were more likely to adopt deep studying approaches promoted by their prior life experiences and were more motivated by intrinsic goals. Their study showed that mature students could perform better when they had an ability to relate their experiences to their academic learning.

Research studies also showed the motivational constructs are reciprocally interrelated with learning approaches (Linnenbrink & Pintrich, 2003). Learners with high self-efficacy beliefs, learning goal orientation, intrinsic motivation, and task value, are more likely to display a deeper learning approach and better performance (Garrison, 1997; Pintrich & Garcia, 1991; Wolters & Pintrich, 1998). Pintrich and Garcia (1991), on the other hand, found that surface processing strategies are weakly related to both intrinsic and extrinsic orientation.

Consistent with the literature, it is expected that the ability of adult students to relate work experiences to their academic learning will result in higher academic achievement. Thus, this study investigated the impact of work experiences on part-time students' academic success through the interrelated concepts of motivational factors and learning approaches. The motivational concept used for this study was derived from social cognitive theory, which includes self-efficacy beliefs, task value, intrinsic motivation, extrinsic motivation, and

learning orientation as motivational factors. Students' approaches to learning were characterized as deep and surface learning approaches.

Research Questions

This study explored three research questions:

1. How does work experience influence the academic learning of adult part-time students in the aspects of motivational factors and learning approach?
2. What is the relationship between adult part-time students' motivational factors, learning approaches, and academic success?
3. How do adult part-time students' perceive the impact of work experiences on their academic learning influence their academic success?

Methods

This study employed a non-experimental, correlational research design (Gliner & Morgan, 2000) to understand the patterns of part-time students' perceptions concerning the impact of work experiences on their academic learning and to investigate this relationship to students' academic success.

Measures

A two-part survey questionnaire was developed. The first section measured perceived influence of work experience on academic learning. The *Motivated Strategies for Learning Questionnaires* (MLSQ) (Pintrich et al., 1991), the *Learning and Studying Questionnaire* (LSQ) (Enhancing Teaching-Learning Environments in Undergraduates Courses [ETL], 2001), and the *Approaches and Study Skills Inventory for Students* (ASSIST) (Entwistle, 1997) were adapted to focus specifically on the influence of job knowledge and skills on part-time student's academic learning rather than their experience in specific courses.

Twenty-four items related to deep and surface learning approaches, learning orientations, extrinsic motivations, intrinsic motivations, self-efficacy beliefs, and task value were selected and adapted to suit the non-traditional population and the context of this study. Nine additional items were developed by the researchers, including four items on negative beliefs, four items on positive beliefs, and one item on deep learning approach. Participants were asked to respond to each statement, using a five-point Likert-type scale from 1 = strongly disagree to 5 = strongly agree. Detailed description of items according to their constructs is shown in Table 1. The second section assessed demographic variables such as gender, age, marital status, number of children, financial resources, and generation status.

Academic success was measured using students' cumulative grade point average (CGPA). The CGPA for each participant was extracted from the semester academic reports obtained from the examination coordinator in the selected institutions.

The questionnaire used dual languages, English and Malay, to increase clarity during the collection of data. The translation was completed by a graduate student from Iowa State University and a lecturer from one of the polytechnic institutions in Malaysia. Both of them were native Malay speakers.

Participants

The population for this study was part-time diploma-level students enrolled in at four polytechnic institutions in Malaysia. Students in their second to final semester were selected because they had at least one semester of academic learning experience as non-traditional students. With the experience of at least one semester of studying while working, these students could provide a broader perspective of the impact of work experience on their

Table 1. Description of items by construct

Deep Learning Approach

When a theory, interpretation, or conclusion is presented in class or in the readings, I try to relate it to my job knowledge and skills¹.

I often find myself questioning things I hear or read in my courses based on my understanding from my job knowledge and skills².

I try to apply my job knowledge and skills in problem solving activities in class¹.

I can memorize better if I relate new concepts to my job knowledge or skills⁴.

Surface Learning Approach

I find that most of my courses are not related to my job knowledge and skills².

I find I can get by in most assessment by memorizing key sections rather than trying to understand them².

I am happy if I get good grades even though do not fully understand the material².

I tend to memorize facts and procedures rather than distinguish principles or concepts².

Learning Orientations

I hope the learning experience here will make me more independent and self-confident³.

I mainly need the qualification to enable me to get a good job when I finish³.

I want to learn things, which might let me help people, and/or make a difference in the world³.

Extrinsic Motivation

Getting a good grade in my courses is the most satisfying thing for me right now¹.

The most important thing for me right now is improving my overall grade point average¹.

I want to do well in my courses because it is important to show my ability to my family, friends, employer, or others¹.

I take my courses just to get my degree².

Intrinsic Motivation

I find most topics in my courses interesting if they are related to my job knowledge and skills¹.

The most satisfying thing for me in my courses is when I can relate the course content to my job knowledge and skills¹.

When I have the opportunity, I choose course assignments that I can relate to my job knowledge and skills even if they don't guarantee good grades¹.

Note: 1 - adapted from the "Motivated Strategies for Learning Questionnaires (MLSQ)" (Pintrich et al., 1991);

2 - adapted from the "Learning and Studying Questionnaire (LSQ)" (Enhancing Teaching-Learning Environments in Undergraduates Courses [ETL], 2001); 3- adapted from the "Approaches and Study Skills Inventory for Students (ASSIST)" (Entwistle, 1997); 4 - New

Table 1. (continued)

Self Efficacy

I believe I will get better grades in my courses (modules) if I were a full-time student (not working)¹.

I am confident I can relate my job knowledge and skills to the concepts taught in my courses¹.

I am confident I can understand the most complex material presented by the instructor in my courses if I can relate it to my job knowledge and skills¹.

Considering the difficulty of the courses in my program, my job knowledge and skills have had a great impact on my success¹.

Task Value

It is important for me to learn the course materials to improve my work performance¹.

I think I will be able to use my job knowledge and skills in most of my courses¹.

I think courses in my program are useful for the improvement of my job knowledge and skills¹.

Positive Belief

My job knowledge and skills reinforce my understanding of new concepts or ideas I learn in class⁴.

I try to relate my job knowledge and skills with new concepts that I learn on my own, without help from anyone⁴.

Instructors help me to integrate my job knowledge and skills into the course content in class⁴.

The evaluation (assessment) of my assignments reflects my work experience application and competencies⁴.

Negative Belief

In class, I often miss important points because I am thinking of my job responsibilities or tasks⁴.

I find my job responsibilities or tasks limit my study time⁴.

I cannot concentrate in class because of fatigue from my job responsibilities⁴.

I often miss class because of my job responsibilities⁴.

academic learning. First-semester students were excluded because they had limited academic learning experience and no CGPA score, which was used as a measure for academic success.

Procedure

Formal approval for conducting the study was obtained from both the Iowa State University Human Subject Institutional Review Board (IRB) and from the Director of the Department of Polytechnic and Community College Education in Malaysia.

The questionnaires were hand-delivered to all part-time students in the study during their scheduled classes either by the researcher or their academic advisor. A letter of introduction assuring participants' anonymity and confidentiality was attached to each questionnaire. They were given approximately thirty minutes of class time to complete the questionnaire. The completed questionnaires were returned directly to the researcher or academic advisor in class using a provided envelope. Participation was voluntary and consent was implied if the participants returned the questionnaires.

Participants were asked to write their identification numbers on the questionnaire for the purpose of assessing their CGPAs from their semester academic reports. Copies of the semester academic reports were obtained from the examination coordinator at each polytechnic. To ensure confidentiality and anonymity, names of students were deleted from the academic reports. The researcher matched the survey data with the academic reports using participant's identification numbers.

Data Analysis

The data gathered from this survey were analyzed using Statistical Packages for Social Sciences (SPSS) Version 17. The data were analyzed for data screening, multivariate assumption tests, factor structures, reliability, correlations among variables, and relational model testing.

Data were screened using SPSS Frequencies analysis to account for the accuracy of data entry, missing data, skewness, kurtosis, and frequency histogram. This information was used to evaluate the three important multivariate assumptions: 1) the absence of outliers, 2) normality, and 3) linearity.

Factor analysis was performed to ensure valid measurement for the influence of work experience on academic learning variables, based on students' perceptions with no specified a priori restrictions. Exploratory factor analysis (EFA) is best applied for scale development and to evaluate the pattern of relationships among items (Tabachnick & Fidell, 2007). Furthermore, EFA helps to minimize scale overlapping and improve internal consistency. Initial factor analysis was conducted using principal component extraction with varimax rotation to estimate the factorability of the correlation matrices, the absence of multicollinearity and singularity, the Kaiser measures of sampling adequacy, the number of factors, and the inter-factor correlations. The maximum likelihood extraction method was used for further analysis, because it provides a stricter test of relationship among variables, which happen because it requires a positive definite covariance matrix (Tabachnick & Fidell, 2007).

The final decision on the number of factors to retain was based on the Kaiser criterion of eigenvalue greater than 1, percent of variance explained, number of items in each factor, and interpretability of the factor solution. Cronbach's Alpha, the measure of internal consistency, was used to determine the reliability of the measuring instruments (Gliner & Morgan, 2000).

Linear relationships between factors of the perceived influence of work experience and students' academic success were evaluated using Pearson's correlation coefficient, 'r'.

The relationships among variables identified as statistically significant at .05 were used for the relationship model.

The path analysis technique, using AMOS software, was used to further investigate the relationships among the variables. The Maximum Likelihood estimation method was chosen because it has been shown to perform reasonably well with multivariate normally distributed data (Tabachnick & Fidell, 2007). A well-fit model was determined by examining the chosen indicators: Chi-squared model fit (χ^2), the root mean square of error approximation (RMSEA), the comparative fit index (CFI), and the goodness of fit index (GFI) (Tabachnick & Fidell, 2007).

Results

Participants

A total of 614 out of 1,054 part-time students returned the questionnaires, representing a 58% response rate. The sample consisted of 437 (71.5%) males and 174 (28.5%) females from five programs (electrical engineering, mechanical engineering, civil engineering, information technology, and commerce) at four institutions. The respondents' ages ranged from 20 to 49 years (mean=25.5). Most of the respondents had work experience of less than 3 years (55.3%), were first generation students (88.2%), were single or married with no children (78.6%), were enrolled in a program related to their job (75.7%), had a monthly salary between Malaysian Ringgit 1000 and 2000 (71.0%), and relied on earnings from employment to support their studies (63.3%).

Data Screening

Frequency analysis indicated four respondents had more than 30% non-response variables and were deleted (Tabachnick & Fidell, 2007). The remaining 610 respondents were used for the analysis. No extreme cases of outliers were found. The two missing data for CGPA were replaced by the mean of all cases, since the amount missing was less than 5% (Tabachnick & Fidell, 2007). Descriptive statistics for the perceived influence of work experience and academic success variables indicated all but two items (first item in both Extrinsic Motivation and Learning Orientation) had skewness within ± 2 and kurtosis within ± 3 , the acceptable range for assuming a normal distribution (Tabachnick & Fidell, 2007). The item of Extrinsic Motivation was omitted from further analysis because its kurtosis value was higher than 7. However, the other item was retained because the kurtosis value was only slightly higher than 3. Moreover, the examination of the histograms also showed normal distributions. Because there was no statistical inference in this study, it was reasonable to conclude the assumption of normality was not violated for exploratory analysis. The assumption of linearity among pairs of items was met because no serious contradicting skewness for each pair of items was noted. The subject-to-item ratio for this study was 18:1 (610:33). Therefore, the sample size met the rule of 10 (at least 10 subjects for each item in the instrument) and the minimum sample size of 5:1 (the subjects-to-variables ratio) (David Garson, 2008; Tabachnick & Fidell, 2007).

Factor Analysis

The results from the principal component extraction with varimax rotation on the remaining 32 items showed inter-item correlations for all items were within the range of .3 to .5, suggesting reasonable factorability, and no multicollinearity or singularity cases. The

overall Kaiser's measure of sampling adequacy (MSA) was .88, above the recommended value of .5 (Tabachnick & Fidell, 2007). The inter-factor correlations presented in Table 2 show the factors were correlated with each other. Given these overall indicators, exploratory factor analysis was then conducted with 32 items using maximum Likelihood extraction and direct oblimin rotation.

Table 2. Inter-factor correlation matrix

Factor	Positive Belief	Negative Belief	Learning Orientation	Deep Learning Approach	Surface Learning Approach	Internal Motivation
1	1.000	-.082	.284	-.449	-.159	.407
2	-.082	1.000	-.079	-.035	.458	.134
3	.284	-.079	1.000	-.197	-.110	.259
4	-.449	-.035	-.197	1.000	-.095	-.343
5	-.159	.458	-.110	-.095	1.000	.097
6	.407	.134	.259	-.343	.097	1.000

Note: Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

The maximum likelihood factor extraction method identified six factors, based on the eigenvalue of more than 1, with 51% of the total variance explained. Table 3 summarizes the factor loadings for the 32 items. Items were ordered and grouped by the value of loading. The six factors were interpreted as positive belief (6 items), negative belief (4 items), learning orientation (3 items), deep learning approach (4 items), surface learning approach (4 items), and intrinsic motivation (3 items). Items on positive belief factor measured the students' judgments on the importance and usefulness of their job knowledge and skills to accomplish their academic tasks and vice versa, which included self-efficacy and task value items from MLSQ. Negative belief is concerned with students' perceptions that their work experiences would hinder their studies and their academic achievements. Learning orientation described

Table 3. Factor loadings based on a maximum likelihood analysis with direct oblimin rotation for 32 items from perceived influence of work experience on academic learning ($N = 610$)

ITEMS	POSB ¹	NEGB ²	LO ³	D LA ⁴	SLA ⁵	INTM ⁶
I am confident that I can relate my job knowledge and skills to the concepts taught in my courses.	.789					
I think courses in my program are useful for the improvement of my job knowledge and skills.	.762					
It is important for me to learn the course materials to improve my work performance.	.656					
I think I will be able to use my job knowledge and skills in most of my courses.	.591					
I am confident that I can understand the most complex material presented by the instructor in my courses if I can relate it to my job knowledge and skills.	.460					
Considering the difficulty of the courses in my program, my job knowledge and skills have had a great impact on my success.	.407					
My job knowledge and skills reinforce my understanding of new concepts or ideas I learn in class.						
In class, I often miss important points because I am thinking of my job responsibilities or tasks.		.671				
I cannot concentrate in class because of my fatigue from my job responsibilities.		.667				
I find my job responsibilities or tasks limit my study time.		.631				
I often miss class because of my job responsibilities		.493				
I believe I will get better grades in my courses (modules) if I were a full-time student (not working).						
I find that most of courses are not related to my job knowledge and skills.						
I try to relate my job knowledge and skills with the new concepts that I learn on my own, without help from anyone						
I mainly need the qualification to enable me to get a good job when I finish.			.646			
I hope the learning experience here will make me more independent and self- confident.			.555			
I want to learn things which might let me help people, and/or make a difference in the world.			.516			
try to apply my job knowledge and skills in problem solving activities in class						-.750
Instructors help me to integrate my job knowledge and skills into the course content in class.						-.549
The evaluation (assessment) of my assignments reflects my work experience application and competencies.						-.445
When a theory, interpretation, or conclusion is presented in class or in the readings, I try to relate it to my job knowledge and skills.						-.402
I can memorize better if I can relate new concepts to my job knowledge and skills.						
I am happy if I get good grades even though do not fully understand the material.						.795
I take my courses just to get my degree.						.672
I find I can get by in most assessment by memorizing key sections rather than trying to understand them.						.583
I tend to memorize facts and procedures rather than distinguish principles or concepts.						.538
The most satisfying thing for me in my courses is when I can relate the course content to my job knowledge and skills.						.439
I find most topics in my courses interesting if they are related to my job knowledge and skills.						.438
I often find myself questioning things I hear or read in my courses based on my understanding from my job knowledge and skills.						.421
I want to do well in my courses because I want to show my ability to my family, friends, employer, and others,						.407
The most important thing for me right now is improving my overall grade point average.						
When I have the opportunity, I choose course assignment that I can relate to my job knowledge and skills even if they don't guarantee good grades.						
% Variance Explained (Total=51.02)	20.14	12.96	5.42	4.76	4.04	3.70

Note: 1 – Positive belief; 2 – Negative belief; 3 - Learning Orientation; 4 – Deep Learning Approach
5 – Surface learning Approach; 6 – Intrinsic motivation

the student's learning objectives, which included learning orientation questions from LSQ. The deep learning approach described the higher-order thinking strategies used by students to relate their job skills and knowledge to their academic learning, which included questions related to elaboration strategies and help seeking in MLSQ. The surface approach focused on memorization strategies used by students to achieve good grades, which included questions from ASSIST. The intrinsic motivation related to internal motivation and satisfaction in learning, which included items related to intrinsic learning goals from MLSQ. Eight items were deleted because of a factor loading less than .4. Thus, the extrinsic motivation factor was dropped from further analysis.

An examination of the histograms identified few cases of outliers in four factors: internal motivation (1), deep learning approach (2), learning orientation (1), and positive belief (1). After replacing the outliers with the mean value, the skewness and kurtosis of all factors were within a tolerable range of ± 2 for assuming a normal distribution. Thus, the identified factors were used in Pearson's correlation and path analysis.

Descriptive Statistics and Pearson's Correlations

The correlational relationships are reported in Table 4. Mean scores, standard deviations, and Cronbach's Alpha for each factor are also displayed. Alpha coefficients were found to range from .63 to .82, indicating a moderate to excellent internal consistency of the scales (Tabachnick & Fidell, 2007). The results showed the average academic achievement of students was in the range of B and above. The students in the sample also *moderately agreed* they used deep learning approaches, but they rated closely to *unsure* for using surface learning approaches. Participants also scored higher mean for positive belief as compared to

negative belief. On average, students rated *moderately agree* to both learning orientation and intrinsic motivation.

Table 4. Means, standard deviations, reliabilities and Pearson's correlation coefficients of the variables

Variable	Mean	Std. Deviation	Reliability Cronbach's Alpha	CGPA	Positive Belief	Negative Belief	Learning O ¹	Deep LA ²	Surface LA ³	Intrinsic M ³
CGPA	3.13	0.41		1						
Positive Belief	4.10	0.60	.82	.046	1					
Negative Belief	2.98	0.95	.78	-.242**	-.070	1				
Learning Orientation	4.42	0.58	.65	-.021	.299**	-.046	1			
Deep Learning Approach	3.85	0.61	.72	.002	.544**	-.022	.358**	1		
Surface Learning Approach	2.83	0.92	.75	-.161**	-.152**	.500**	-.030	.017	1	
Internal Motivation	4.23	0.53	.63	.093*	.539**	-.051	.384**	.470**	-.027	1

Note : *statistically significant at $p < .05$, ** statistically significant at $p < .01$
 1 – orientation; 2 – learning approach; 3 - motivation

Pearson's correlation analysis yielded significant positive and negative relationships among the variables. The correlation size was drawn from the following interpretations: a coefficient value greater than 0.7 is strong, below 0.3 is weak or low association, and in between these values is a moderate relationship (Furlong et al., 2000). Positive belief was moderately associated with deep learning approach, intrinsic motivation, and learning orientation. Intrinsic motivation was also moderately related to learning orientation, and deep learning approach, and weakly correlated with students' academic success. Another significant positive relationship was between negative belief and surface learning approach.

The results also revealed that students' academic success was negatively related to negative belief and surface learning approach. Surface learning approach was also negatively associated with positive belief.

Path Model

Based on Pearson's correlation matrix between the variables, several models with different combinations of significant paths and plausible structure were analyzed using AMOS. The adjustments made to the models were based on the modification index and the improvement of the goodness-of-fit indices. The best-fitted path model, illustrated in Figure 1, suggested the deep and surface learning approach as exogenous variables. Furthermore, the model included intrinsic motivation, learning orientation, positive belief, negative belief, and students' academic success as endogenous variables. Positive belief mediated the influence of the deep learning approach, intrinsic motivation for learning, and surface learning on students' academic success. Negative belief, on the other hand, mediated the relationships of surface learning on students' academic success. Learning orientation and intrinsic motivation mediated the relationship between the deep learning approach and academic success.

The fit statistics for the path model were all above the acceptable values (Tabachnick & Fidell, 2007). The non-significance of the chi-squared model fit test indicated a good model fit (Chi-squared=7.03, $df=9$, $p=.634$). Other goodness-of-fit indices indicated a good-fitting model, including GFI=.99, NFI=.97, and CFI=1.00 (acceptance value > .95). The RMSEA value of .0001 (acceptance value < .05) also supported the good fit of the model. Furthermore, the inspection of the standardized residual covariance matrix showed all normalized residual values were less than ± 1.96 , which indicated a good fit of the model.

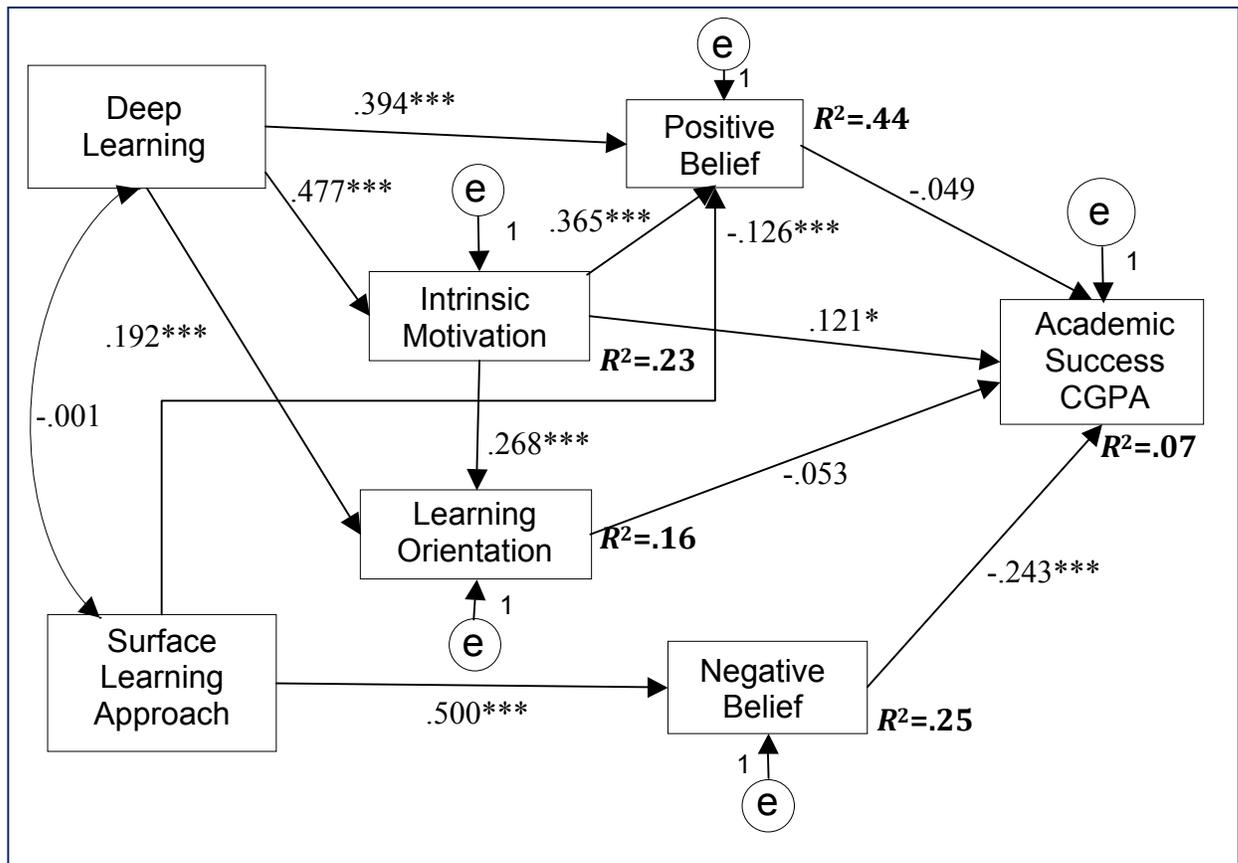


Figure 1. Path model for the impact of work experience on part-time students' academic success

Note: The straight arrows represent regression paths for presumed relationships, while the curved double-headed arrows represent assumed correlation between the exogenous variables. The endogenous variables are depicted with associated error terms, e . The regression weight between the error and endogenous variable was set as 1. R^2 represents the total variance explained. statistically significant at $*p < .05$, $**p < .01$, $***p < .001$

The good fit tests indicated the model was accepted and the path coefficients in the model could be interpreted. All parameter estimates were significant ($p < 0.001$), except for the regression coefficients (β) between learning orientation and students' academic success, and positive beliefs and students' academic success. Students' academic success was negatively predicted by the direct effect of negative beliefs ($\beta = -.243$, $p < .001$). Negative belief was positively influenced by surface learning ($\beta = .500$, $p < .001$). Positive belief was moderately predicted by the deep learning approach ($\beta = .394$, $p < .001$) and intrinsic

motivation ($\beta=.365, p< .001$) and negatively influenced by surface learning ($\beta=-.126, p< .001$). The deep learning approach positively predicted intrinsic motivation ($\beta=.447, p< .001$) and learning orientation ($\beta=.268, p< .001$).

Discussion

Motivation Factor and Learning Approach Pattern

As adult learners, part-time students in polytechnic institutions in Malaysia demonstrate high mean scores in positive belief, learning orientation, and intrinsic motivation. The high score in positive belief suggests that most students agree their job knowledge and skills are important and useful to accomplish their academic tasks and vice versa. Furthermore, high scores in learning orientation and intrinsic motivation indicate they are internally motivated to learn. Consistent with other studies, polytechnic part-time students perceive they are more inclined toward adopting deep learning as compared to surface learning approaches (Biggs, 1987; Harper & Kember, 1986; Richardson, 1995). These results indicate that part-time students tend to relate their job knowledge and skills to understanding new concepts taught in class. Clearly, the students rank lower on beliefs that their work commitments could limit their academic involvement.

Relationship between Motivational Factors and Learning Approaches

The high correlation between the surface learning approach and negative belief is explainable. According to Biggs (1987), learners with surface learning approaches tend to become depressed and fear the possibility of failure. Thus, those with high surface learning approaches tend to have perceptions that their work commitments could be the main barrier to their involvement in academic learning. Reay et al. (2002) revealed that adult learners who are unsuccessful in their studies tend to put the blame of their failure on other

responsibilities, such as family and work commitments. True enough, the surface learning approach and negative belief are not significantly related to either learning orientation or intrinsic motivation. In contrast, students with higher scores in the deep learning approach tend to believe their work experiences could improve their academic learning. Viewing their learning to be interesting and exciting, as it is related to their job knowledge and skills, could be the main reason for the higher scores in positive belief. Furthermore, the fact students employing more toward deep learning approaches was also positively related to higher scores of intrinsic motivation and learning orientation variables (Harper & Kember, 1986; Pintrich & Garcia, 1991).

The most important finding of this study is the significant association between negative belief and students' academic success. Students who believe that work experience hinders their academic learning tend to have lower academic achievement. It is possible that their negative beliefs lead them to disengage in learning, which explains their lower academic achievement. Furthermore, the strong relationship between the negative belief and the surface learning approach adds to their lower academic achievement. Lack of clear understanding of the contents they learned and focusing on memorizing information as segregated ideas may contribute to their lower academic achievement. In fact, the lower scores in learning orientation and intrinsic motivation by students with higher negative beliefs indicate that they are not internally motivated. Those with lower intrinsic motivations tend to be less motivated when they face problems in their academic learning.

Conversely, positive belief, learning orientation, and deep learning approach are not statistically related to students' academic success, while intrinsic motivation is weakly associated to students' academic success. These findings indicate the higher scores of

students' positive beliefs, deep approaches, and learning orientations do not guarantee higher grades. Dart et al. (1999) showed that students' adoption of learning approaches is very closely related to their personal intentions with regard to learning, the context of learning, and their personal characteristics. The learning environment also plays a significant role in the integration of work experience and academic learning (Knowles, 1989). These previous findings explain the obscure relationships among these factors on students' academic success. Even though students perceive they are able to relate their work experience and apply the deep learning approach to their learning, they may not be able to make connections between work experiences and new concepts taught in class. They may need their instructor's help, effective teaching and learning methods, and appropriate classroom environments to encourage application of job skills and knowledge in academic learning environments.

Path Model

Subsequently, the path analysis illustrates the correlational effects among the motivational factors, learning approaches, and students' academic success. The best fitted path model in this study indicates the salient factor affecting students' academic success is the belief that their work commitments constrain their academic learning involvement. Intrinsic motivation weakly influences students' academic success. Other factors, such as the deep learning approach, the surface learning approach, positive belief, and learning orientation, do not have direct effects on students' academic success.

Other important findings in this study are the effects of the deep learning approach, intrinsic motivation, and learning orientation on learners' positive beliefs. These predictors account for 44% of the variance explained, whereas negative belief is affected mostly by the surface learning approach and this predictor accounts for 25% of the variance explained.

Students' academic success is influenced by negative beliefs and accounts for 7% of the total variance explained. The findings reveal that students who are more inclined toward adopting the deep learning approach, greater intrinsic motivation, and greater learning orientation tend to show positive perceptions of the impact of their work experience on their academic learning. In contrast, students who are more inclined toward surface learning approaches are more likely to perceive negatively the impact of work experiences on their academic learning.

Research Implications

These findings demonstrate the potential and relevance of significant correlational effects between motivational factors and learning approaches in relation to the impact of work experience on students' academic learning and success. However, more research is needed to further investigate and refine the relationships between these factors. It could be beneficial to investigate many other potential variables that could influence how adults learn, such as extrinsic motivation, achievement goals, and classroom learning environment. The use of existing questionnaires, which are more geared toward Western culture, may lead to a cultural impact on the responses provided by the participants. Furthermore, motivation measurement varies according to different contexts, so, looking in general to the impact of work experience on part-time students' academic success may be ineffective. Examining the impact of work experience on specific contexts, such as particular cultures and courses, requires further research.

In addition, the instrument used in this study focused on work experiences and did not take into account other influences, such as life and educational experiences, which might have limited the findings. These findings may also be biased toward students' own beliefs

and understanding rather than reality. Therefore, further research is suggested to investigate the impact of work experience on adult learners' academic learning and success from the instructors', administrators', and employers' perspectives.

Practical Implications

There are several important practical implications of the above findings. As mostly working adults, part-time students are exposed to a variety of learning opportunities at their workplace that can be applied to their academic learning. These findings indicate that positive belief, learning orientation, and the deep learning approach are not statistically related to students' academic success. Consequently, these findings emphasize that part-time students need support from institutions and instructors to make their work experiences more meaningful to their academic learning. It may be advantageous to structure a classroom learning environment that could facilitate or create more opportunities for students to actively apply their job knowledge and skills to their academic learning. For instance, various teaching techniques, such as active and reflective learning, may be employed to stimulate students' interests and motivations. Even though students believe that work experiences could provide a positive impact on their academic learning, the design of educational programs, teaching and learning strategies, and assessment methods must be congruent with their goals, needs, and beliefs to ensure their success.

Students' beliefs that work commitments limit their academic learning are associated with lower academic achievement. These students should be provided with awareness and learning skills to change their negative beliefs. Administrators and educators may want to develop motivational or interventional programs to motivate students with negative beliefs to enhance their self-efficacy, task value, intrinsic motivation, and learning orientation. Lower

academic achievement is also affected by the surface learning adopted by these students. Thus, helping these students to develop deep learning approach is important. As part of the Emerging Pathways project (Pusser et al., 2007), Levin suggested that most successful adult learners received help from support programs and college leaders, such as administrators, counselors, and faculty. Thus, the establishment of support service programs at institutional level is critical in ensuring the success of adult learners.

This study demonstrates that the success of adult learners in their studies does not rely on their positive attitudes alone, but also could depend on the effectiveness of the classroom environment, teaching and learning strategies, and assessment methods. These findings illustrate that part-time students need appropriate learning support and guidance from the institution and instructors to relate their work experiences to their academic learning, as well as to change their negative beliefs. The suggestions outlined above should serve as practical tools to enhance adult learners' academic performance.

Conclusions

The following conclusions are based upon findings of this study:

- Descriptive statistics - Part-time students in Malaysian polytechnic institutes exhibited higher mean scores in positive belief, learning orientation, and intrinsic motivation than that of negative belief. The mean score results also indicated they were more inclined toward adopting deep than surface learning approaches.
- Correlational analysis - Positive relationships were found between the pairing of any of the following factors: positive belief, deep learning approach, learning orientation, and intrinsic motivation. Negative belief and surface learning approach were positively associated. Higher negative belief was associated with lower academic

achievement. A weak relationship was found between academic success and intrinsic motivation.

- Path Analysis - Academic success was affected moderately by negative belief and weakly by intrinsic motivation with the total variance explained of 7%. Positive belief was influenced by deep learning approach, intrinsic motivation and learning orientation, which accounted for 44% of the variance explained. Negative belief was influenced by surface learning approach and accounted for 25% of the variance explained.

Based on this study's discussions and conclusions, the following recommendations for future research and administrators are generated:

- Include additional variables that could influence adult learning such as extrinsic motivation, achievement goals, and classroom learning environment.
- Examine the impact of work experience on specific contexts, such as particular cultures or courses
- Investigate the influence of work experience from instructors', administrators' and employers' perspectives.
- Conduct this same study using a broader group of adult learners or part-time students and also investigate potential differences due to academic discipline among these part-time students.
- Design educational programs, teaching and learning strategies, and assessment methods that are congruent with adult learner goals, needs, and beliefs to ensure their success.

- Develop motivational or interventional programs to motivate students with negative beliefs to enhance their self-efficacy, task value, intrinsic motivation, and learning orientation.

Acknowledgements

The researcher would like to express her gratitude to the Malaysian Government, Ministry of Higher Education, and Department of Polytechnic Education for their support in funding this project and their cooperation during data collection process.

References

- Abdol Latif, L. & Fadzil, M. (2007). *Retention initiatives at Open University Malaysia: Past, present and future*. Retrieved from http://eprints.oum.edu.my/14/1/Retention_initiatives.pdf
- Agar, D. (1990). Non-traditional students: perceptions of problems which influence academic success. *Higher Education*, 19(4), 435-454.
- Alderman, M. K. (2008). *Motivation for achievement: Possibilities for teaching and learning*. New York: Routledge.
- Biggs, J.B. (1987). *Student Approaches to Learning and Studying*. Melbourne: Australian Council for Educational Research.
- Chao, E. L., DeRocco, E. S., & Flynn, M. K. (2007, March). *Adult learners in higher education: Barriers to success and strategies to improve results*. Washington, DC: Employment and Training Administration.
- Chen, X., & Carroll, C. D. (2007). *Part-time undergraduates in postsecondary education: 2003-04*. Washington, DC: National Center for Education Statistics.
- Cranton, P. (1992). *Working with adult learners*. Middletown, OH: Wall & Emerson.
- Darkenwald, G., & Merriam, S. (1982). *Adult education: Foundations of practice*. New York: Harper Collins.
- Dart, B., Burnett, P., Boulton-Lewis, G., Campell, J., Smith, D., & McCrindle, A. (1999). Classroom learning environments and students' approaches to learning. *Learning Environments Research*, 2(2), 137-156.
- Desjardins, R., Rubenson, K., & Milana, M. (2006). *Unequal chances to participate in adult learning: International perspectives*. Paris: UNESCO Institute for Educational Planning.
- Donaldson, J. E., & Graham, S. (1999). A model of college outcomes for adults. *Adult Education Quarterly*, 50(1), 24-40.
- Economic and Social Research Council. (2001). *Learning and Studying Questionnaires*. Retrieved from <http://www.etl.tla.ed.ac.uk/questionnaires/LSQ.pdf>
- Entwistle, N. J. (1997). *The approaches and study skills inventory for students (ASSIST)*. Edinburgh: Center for Research on Learning and Instruction, University of Edinburgh.

- Fairchild, E. E. (2003). Multiple roles of adult learners. *New Directions for Student Services*, 2003(102), 11–16.
- Furlong, N.E., Lovelace, E.E. and Lovelace, K.L. (2000). *Research methods and statistics—an integrated approach*. Harcourt, Brace Fort Worth.
- Garrison, D. R. (1997). Self-directed learning: Toward a comprehensive model. *Adult Education Quarterly*, 48(1), 18-33.
- Garson, D.G. (2008). Factor analysis: Statnotes. Retrieved from North Carolina State University Public Administration Program, <http://www2.chass.ncsu.edu/garson/pa765/factor.htm>.
- Gliner, J. A., & Morgan, G. A. (2000). *Research methods in applied settings: An integrated approach to design and analysis*. New Jersey: Lawrence Erlbaum Associates.
- Graham, S. W., Donaldson, J. F., Kasworm, C., & Dirkx, J. (2000). *The experiences of adult undergraduate students—what shapes their learning?* Retrieved from ERIC database. (ED440275)
- Harper, G. & Kember, D. (1986). Approaches to study of distance education students, *British Journal of Educational Technology*, 17(3), 212-222.
- Higher Education Funding Council in England. (2009). *Part-time first degree study: Entry and completion*. Retrieved from http://www.hefce.ac.uk/pubs/hefce/2009/09_18/
- Horn, L. J., & Carroll, C. D. (1996). *Nontraditional undergraduates: Trends in enrollment from 1986 to 1992 and persistence and attainment among 1989-90 beginning postsecondary students. Postsecondary Education Descriptive Analysis Reports. Statistical Analysis Report*. U.S. Government Printing Office. Washington, DC 20402-9328.
- Kasworm, C. (1990). Adult undergraduates in higher education: A review of past research perspectives. *Review of Educational Research*, 60(3), 345–375
- Kasworm, C. (2002). African American Adult Undergraduates: Differing Cultural Realities. *Journal of Continuing Higher Education*, 50(1), 10–29.
- Kasworm, C., Polson, C., & Fishback, S. (2002). *Responding to adult learners in higher education*. Malabar, FL: Krieger Publishing Company.
- King, J. E. (2003). Nontraditional attendance and persistence: The cost of students' choices. *New Directions for Higher Education*, 2003(121), 69–84.

- Knowles, M. S. (1989) *The Making of an Adult Educator. An autobiographical journey*, San Francisco: Jossey-Bass.
- Linnenbrink, E. A. & Pintrich, P. R. (2002). Motivation as an enabler for academic success. *School Psychology Review*, 31(3), 313-327.
- Linnenbrink, E. A. & Pintrich, P. R. (2003). The role of self-efficacy beliefs in students engagement and learning in the classroom. *Reading and Writing Quarterly*, 19(2), 119-137.
- Merriam, S. B. (2005). How adult life transitions foster learning and development. *New Direction for Adult and Continuing Education*, 2005(108), 3–13.
- Ministry of Higher Education, Malaysia. (2009). *Laporan statistik pelajar kementerian pengajian tinggi Malaysia*. Retrieved from http://www.mohe.gov.my/web_statistik/index.htm
- Organization for Economic Co-operation and Development (OECD). (2010). *Highlights from education at glance 2010*. Retrieved from http://www.oecd-ilibrary.org/education/highlights-from-education-at-a-glance-2010_eag_highlights-2010-en
- Pintrich, P. R., & Garcia, T. (1991). Student goal orientation and self-regulation in the college classroom. In M. Maehr, & P.R. Pintrich, *Advances in motivation and achievement: Goals and self-regulatory processes*, vol. 7. Greenwich, CT: JAI Press.
- Pintrich, P. R., Smith, D. A. F. , Garcia, T. & McKeachie, W. J. (1991). *Manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. Ann Arbor, MI: National Center for Research to Improve Postsecondary Teaching and Learning.
- Pusser, B., Breneman, D. W., Gansneder, B. M., Kohl, K. J., Levin, J. S., Milam, J. H., et al., (2007, March). *Returning to learning: Adults' success in college is key to America's future*. Indianapolis: Lumina Foundation for Education. Retrieved from <http://www.luminafoundation.org/publications/ReturntolearningApril2007.pdf>
- Reay, D., Ball, S., & David, M. (2002). “It’s taking me a long time but I’ll get there in the end”: Mature students on access courses and higher education choice. *British Educational Research Journal*, 28(1), 5-19.
- Richardson, J. T. E. (1995). Mature students in higher education: II. An investigation of approaches to studying and academic performance. *Studies in Higher Education*, 20(1), 5–17.
- Robotham, D., & Julian, C. (2006). Stress and the Higher Education Student: a Critical Review of the Literature. *Journal of Further and Higher Education*, 30(2), 107- 117.

- Rogers, A. (2002). *Teaching adults*. Berkshire: Open University Press, McGraw-Hill House.
- Spanard, J. A. (1990). Beyond intent: Re-entering college to complete the degree. *Review of Educational Research*, 60(3), 309-344.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon.
- United Nations Educational, Scientific, and Culture Organization [UNESCO] Institute for Lifelong Learning (UIL). 2009. *Global report on adult learning and education*. Hamburg: UNESCO Institute for Lifelong Learning. Retrieved from <http://unesdoc.unesco.org/images/0018/001864/186431e.pdf>
- Wolters, C., and Pintrich, P. R. (1998). Contextual differences in student motivation and self-regulated learning in mathematics, English, and social studies classrooms. *Instructional Science*, 26(1), 27-47.
- Zimmerman, B. J. & Schunk, D. H. (2008). *Motivation: An essential dimension of self-regulated learning*. In Schunk, D. H. & Zimmerman, B. J. Motivation and self-regulated learning: Theory, research and applications. New York: Lawrence Erlbaum Associates.

CHAPTER 4. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This final chapter provides the overview of the study on part-time students' academic success. Highlights on the key findings of the research are presented along with recommendations for future research and administrators.

Overview of the Study

The purpose of this study was to explore the effects of demographic characteristics, employment variables, and the impact of work experiences on part-time students' academic success at Malaysian polytechnic institutions. Demographic characteristics included age, gender, marital status, number of children, college-generation status (first- or second-generation), and financial resources. Employment variables included number of years working, job-relatedness to the program, monthly salary, and job satisfaction. The impact of work experience was investigated through student motivational aspects and learning approaches.

This study was guided by five research questions. The first two questions examined the role of demographic characteristics and employment variables in predicting part-time students' academic success. The remaining three research questions investigated the impact of work experience on students' academic success through their motivational factors and learning approaches.

Summary of the Findings

Demographic characteristics and employment variables as predictors of part-time students' academic success were investigated through these research questions:

1. What are the effects of demographic characteristics on part-time students' academic success?
2. What are the effects of employment variables on part-time students' academic success?

The following conclusions are based upon the findings of these research questions:

- Demographic characteristics and employment variables played significant roles in predicting part-time students' academic success at polytechnic institutions in Malaysia.
- Among demographic characteristics, students who were older, female, childless, and financed their own education were more likely to score higher grades.
- After controlling for demographic characteristics and other employment variables, job satisfaction was the only employment variable that exhibited significant predictability of students' academic achievement.
- The overall model explained a considerable amount of the variation in students' academic achievement, even though only four variables—female, older, self-financed, and high job satisfaction—had significant predictability. These findings indicate good preliminary results for a previously unstudied population. The R-squared value indicates the need for future research to improve the predictability.

Identifying the role of demographic characteristics and employment variables in predicting students' academic success contributes valuable information to administrators and educators of part-time students to develop policies, teaching and learning strategies, and support services to enhance students' performance in their studies.

Part-time students' perceptions of the impact of work experience on their academic success were examined through these research questions:

1. How does work experience influence the academic learning of part-time students in the aspects of motivational factors and learning approaches?
2. What is the relationship between part-time students' motivational factors, learning approaches, and academic success?
3. How do part-time students' perceptions on the impact of work experiences influence their academic success?

The following conclusions are based upon the findings of these research questions:

- Part-time students in Malaysian polytechnic institutions exhibited higher mean scores on positive belief, learning orientation, and intrinsic motivation than that of negative belief. The mean score results also indicated that they were inclined to adopt deep rather than surface learning approaches.
- Lower academic success was associated with higher negative belief and lower intrinsic motivation. Positive relationships were found between the pairing of the following factors: positive belief, deep learning approach, learning orientation, and intrinsic motivation. Negative belief and surface learning approach were also positively associated.
- Academic success was affected moderately by negative belief and weakly by intrinsic motivation, with the total variance explained of 7%. Positive belief was influenced by deep learning approach, intrinsic motivation and learning orientation, which accounted for 44% of the variance explained. Negative belief was influence by surface learning approach and accounted for 25% of the variance explained.

Examining the impact of work experience on adult learners' academic learning and success based on their own perceptions provides the needed direction for future research and policy development in incorporating work experience to improve teaching and learning processes, adult learners' participation, academic performance outcomes, and institutional effectiveness.

Recommendations for Future Research and Administrators

Based on this study's results and conclusions, the following recommendations are made for future researchers and administrators regarding demographic and employment variables as predictors of academic success:

- Examine the relationships among demographic characteristics and employment variables to better understand how these factors affect students' academic success.
- Include other potential predictors of academic success, such as learning approach and students' motivations, to fully explore the relationships among demographic variables, employment factors, and students' academic success.
- Develop a more comprehensive assessment of employment variables, such as attitudinal aspects related to how students' perceive the influence of their work experiences on their academic learning.
- Conduct this same study using a broader group of part-time students in higher education in Malaysia to enhance the generalization of the findings in a Malaysian context and investigate potential differences due to varying academic disciplines among these part-time students.
- Develop effective intervention programs, policies, and teaching and learning processes based on students' gender, age, financial resources, and job satisfaction.

For instance, motivational program for younger and male students could improve their academic achievement.

Based on this study's results and conclusions, the following recommendations are made regarding students' perceptions of the impact of their work experience on academic success:

- Include other potential variables that could influence adult learning such as extrinsic motivation, achievement goals, and classroom learning environment.
- Examine the impact of work experience on specific contexts, such as particular cultures or courses
- Investigate the influence of work experience from instructors', administrators', and employers' perspectives.
- Conduct this same study using a broader group of adult learners or part-time students in Malaysia and also investigate potential differences due to varying academic disciplines among these students.
- Design educational programs, teaching and learning strategies, and assessment methods that are congruent with adult learners' goals, needs, and beliefs to ensure their success.
- Develop motivational or interventional programs to motivate students with negative beliefs to enhance their self-efficacy, task value, intrinsic motivation, and learning orientation

APPENDIX A. SURVEY INSTRUMENT**LETTER OF INTRODUCTION**

Date:

Dear Valued Students,

The purpose of this study is to investigate the relationship between work experience and academic success of part time students at polytechnics in Malaysia. As a part-time student (adult learner) at the polytechnic institutions, you are invited to participate in this study.

Your participation in this study is completely on a voluntary basis. If you agree to participate in this study, you will need thirty minutes to complete the questionnaire. You will be required to complete questions pertaining to your background, reasons for returning to school, learning experience and transitions from work to school. You may decline to participate or leave the study at any time. If you decide not to participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled to. Please place the questionnaire in the envelope provided, seal and submit it in the box provided.

To ensure confidentiality to the extent permitted by law, the following measures will be taken:

- i) Questionnaires will not contain any names. Once the data file is complete, all identifiers will be deleted prior to any analysis..
- ii) Only the principal investigator and the major professor will have access to the data.
- iii) The computer data will be stored on the principal investigator's personal computer, while printed data will be stored in a locked file cabinet.
- iv) All data will be kept for one year after completion of the study.
- v) If the results are published, your identity will remain confidential.

It is my hope that the information gained from this study on how work experiences contribute to the academic learning of part-time students in polytechnics will contribute meaningfully towards improving our higher education, in particular continuing education for the benefit of Malaysian society as a whole.

Please accept my sincere appreciation for your participation in the study. Should you have any questions, do not hesitate to contact Norhayati Ibrahim at 012-2855692

Thank you

Sincerely,

Norhayati Ibrahim
Graduate Student
Iowa State University
United States of America

Tarikh:

Kepada pelajar politeknik,

Tujuan kajian ini adalah untuk mengkaji kesan pengalaman kerja ke atas pencapaian akademik pelajar separuh masa di politeknik Malaysia. Anda dipelawa untuk menyertai kajian ini kerana anda adalah pelajar separuh masa di politeknik ini.

Penyertaan anda adalah secara sukarela dan anda berhak memilih untuk tidak menyertai kajian ini pada bila-bila masa. Sekiranya anda bersetuju untuk menyertai kajian ini, anda hanya perlu meluangkan masa tidak lebih dari 30 minit untuk melengkapkan soalselidik ini. Anda akan ditanya mengenai sebab-sebab anda melanjutkan pelajaran, pengalaman belajar, pengalaman semasa peralihan dari kerja kepada belajar dan maklumat peribadi serta pekerjaan. Anda boleh menarik diri dari menyertai kajian ini atau dan meninggalkan sebarang soalan sekiranya anda berasa kurang selesa dengan soalan yang terdapat di dalam soalselidik ini. Tiada sebarang risiko yang akan anda hadapi pada masa kini dan akan datang sekiranya anda menyertai kajian ini. Sila isikan soalselidik ke dalam sampul yang disediakan dan masukkan ke dalam kotak yang disediakan. Ini bagi memastikan identiti anda terjamin dan tidak terdapat pada soalselidik.

Bagi menjamin prosedur “sulit dan persendirian” yang telah ditetapkan oleh undang-undang, langkah-langkah berikut akan diambil:

1. borang tidak akan disertakan dengan nama anda. Setelah data dilengkapkan, sebarang pengenalan diri akan dihapuskan sebelum analisis data dilaksanakan
2. hanya penyelidik dan penyelia penyelidik yang mempunyai capaian terhadap data-data kajian
3. segala data komputer hanya akan disimpan di dalam komputer peribadi milik penyelidik dan sebarang data yang telah dicetak akan disimpan di dalam cabinet berkunci
4. segala data akan disimpan selama satu tahun dari tarikh kajian disiapkan.
5. Sekira kajian akan diterbitkan, maklumat anda akan tetap dirahsiakan.

Saya berharap agar segala maklumat yang diperolehi dari kajian ini akan dapat membantu meningkatkan kefahaman mengenai kesan pengalaman kerja ke atas pencapaian akademik pelajar separuh masa di politeknik Malaysia.

Penyertaan anda amatlah dihargai. Jika anda mempunyai sebarang pertanyaan, sila hubungi saya, Norhayati Ibrahim di talian 012-2855692.

Sekian, terima kasih.

Yang benar

 Norhayati Ibrahim
 Pelajar Kedoktoran
 Iowa State University
 Amerika Syarikat

Identification Number *Nombor Matrik* : _____

SECTION A

1. **Reasons for returning to school** *Sebab-sebab melanjutkan pelajaran*
 - 1.1 Be able to get a better job *Untuk mendapat pekerjaan lebih baik*
 - 1.2 Broaden my perspectives *Memperluaskan pespektif saya*
 - 1.3 Be able to make more money *Meningkatkan pendapatan*
 - 1.4 Learn more about things that interest me *Mempelajari bidang yang saya minati*
 - 1.5 Feel a sense of accomplishment / attainment *Merasai kepuasan mencapai kejayaan*
 - 1.6 Develop self confidence *Membina keyakinan diri*
 - 1.7 Develop interpersonal skills *Membina kemahiran interpersonal*
 - 1.8 Prepare for a new job *Persediaan untuk pekerjaan baru*
 - 1.9 Prepare for job advancement *Persediaan untuk peningkatan kerjaya*
 - 1.10 Acquire new knowledge *Memperolehi pengetahuan baru*
 - 1.11 Acquire new skills *Memperolehi kemahiran baru*
 - 1.12 Improve myself *Peningkatan diri*
 - 1.13 Get an academic qualification *Mendapat kelayakan akademik*

From the reasons above *Berdasarkan sebab-sebab di atas,*

Please indicate the two most influential reasons for returning to school (*use item number such as 1.1 – be able to get a better job*) *Sila nyatakan dua sebab utama anda melanjutkan pelajaran (gunakan nombor item, contoh 1.1 = untuk mendapat pekerjaan lebih baik)*

_____ and _____

Please indicate the two least influential reasons for returning to school *Sila nyatakan dua sebab yang paling tidak mempengaruhi anda melanjutkan pelajaran.*

_____ and _____

<p>2. The following are a series of statements. Please circle only <u>one</u> number for each statement which corresponds most closely to your learning experience in your program. Remember there is no right or wrong answer.</p> <p><i>Berikut adalah beberapa pernyataan. Sila bulatkan hanya <u>satu</u> nombor bagi setiap pernyataan sebagai jawapan yang menggambarkan secara paling hampir pengalaman pembelajaran anda di dalam program yang sedang anda ikuti. Sebagai peringatan, tiada jawapan yang benar atau salah.</i></p>	Strongly Disagree Sangat tidak setuju	Slightly Disagree Agak tidak setuju	Unsure Tidak Pasti	Moderately Agree Agak Setuju	Strongly Agree Sangat setuju
<p>2.1 I believe I will get better grades in my courses if I were a full-time student (not working). <i>Saya percaya saya akan mendapat keputusan yang lebih baik sekiranya saya adalah pelajar sepenuh masa (sekiranya saya tidak bekerja)</i></p>	1	2	3	4	5
<p>2.2 Getting a good grade in my courses is the most satisfying thing for me right now. <i>Mendapat keputusan yang baik adalah perkara yang paling memuaskan hati saya</i></p>	1	2	3	4	5
<p>2.3 It is important for me to learn the course materials to improve my work performance <i>Adalah penting bagi saya untuk mengikuti kursus ini bagi meningkatkan prestasi kerja saya</i></p>	1	2	3	4	5
<p>2.4 The most important thing for me right now is improving my overall grade point average. <i>Perkara yang paling penting bagi saya ialah meningkatkan pencapaian keseluruhan,</i></p>	1	2	3	4	5
<p>2.5 I am confident I can relate my job knowledge and skills to the concepts taught in my courses. <i>Saya yakin saya boleh menghubungkan pengetahuan dan kemahiran kerja dengan konsep yang saya pelajari di dalam kursus-kursus saya.</i></p>	1	2	3	4	5
<p>2.6 I am confident I can understand the most complex material presented by the instructor in my courses if I can relate it to my job knowledge and skills. <i>Saya yakin saya boleh memahami perkara yang paling sukar diterangkan oleh pensyarah sekiranya saya boleh menghubungkan dengan pengetahuan dan kemahiran kerja saya.</i></p>	1	2	3	4	5
<p>2.7 I find most topics in my courses interesting if they are related to my job knowledge and skills. <i>Saya mendapati semua topik dalam kursus-kursus saya menarik sekiranya berkaitan dengan pengetahuan dan kemahiran kerja.</i></p>	1	2	3	4	5
<p>2.8 I think I will be able to use my job knowledge and skills in most of my courses <i>Saya berpendapat saya boleh menggunakan pengetahuan dan kemahiran kerja dalam kursus-kursus yang saya ambil</i></p>	1	2	3	4	5

	Strongly Disagree Sangat tidak setuju	Slightly Disagree Agak tidak setuju	Unsure Tidak Pasti	Moderately Agree Agak Setuju	Strongly Agree Sangat setuju
2.9 The most satisfying thing for me in my courses is when I can relate the course content to my job knowledge and skills. Saya akan merasa sangat berpuas hati apabila saya boleh menghubungkan kandungan kursus dengan pengetahuan dan kemahiran kerja saya.	1	2	3	4	5
2.10 I think courses in my program are useful for the improvement of my job knowledge and skills. Saya berpendapat kursus-kursus saya di dalam program ini sangat berguna untuk meningkat pengetahuan dan kemahiran kerja saya.	1	2	3	4	5
2.11 When I have the opportunity, I choose course assignments that I can relate to my job knowledge and skills even if they don't guarantee good grades. Sekiranya saya berpeluang, saya akan memilih kerja-kerja kursus yang berkaitan dengan pengetahuan dan kemahiran kerja walaupun ia tidak menjanjikan keputusan yang baik.	1	2	3	4	5
2.12 I want to do well in my courses because it is important to show my ability to my family, friends, employer, or others. Saya ingin mendapatkan keputusan yang terbaik bagi kursus-kursus saya untuk membuktikan kebolehan saya kepada keluarga, rakan-rakan, majikan dan sebagainya.	1	2	3	4	5
2.13 Considering the difficulty of the courses in my program, my job knowledge and skills have had a great impact on my success. Mengambil kira tahap kesukaran kursus-kursus di dalam program ini, pengetahuan dan kemahiran kerja telah memberi kesan yang besar ke atas kejayaan saya.	1	2	3	4	5
2.14 When a theory, interpretation, or conclusion is presented in class or in the readings, I try to relate it to my job knowledge and skills. Apabila teori, tafsiran atau kesimpulan disampaikan di dalam kelas atau melalui pembacaan, saya cuba menghubungkannya dengan pengetahuan dan kemahiran pekerjaan saya.	1	2	3	4	5
2.15 My job knowledge and skills reinforce my understanding of new concepts or ideas I learn in class Pengetahuan dan kemahiran kerja memperkukuhkan kefahaman saya mengenai konsep-konsep baru yang saya pelajari	1	2	3	4	5
2.16 I often find myself questioning things I hear or read in my courses based on my understanding from my job knowledge and skills. Saya selalu mempersoalkan semula perkara-perkara yang saya dengar atau baca berdasarkan kefahaman dari pengetahuan dan kemahiran kerja.	1	2	3	4	5

	Strongly Disagree Sangat tidak setuju	Slightly Disagree Agak tidak setuju	Unsure Tidak Pasti	Moderately Agree Agak Setuju	Strongly Agree Sangat setuju
2.17 In class, I often miss important points because I am thinking of my job responsibilities or tasks. <i>Di dalam kelas, saya selalu terlepas perkara-perkara yang penting berkenaan kursus kerana memikirkan tanggungjawab atau tugas-tugas kerja saya.</i>	1	2	3	4	5
2.18 I try to relate my job knowledge and skills with new concepts that I learn on my own, without help from anyone. <i>Saya cuba mengaitkan pengetahuan dan kemahiran kerja dengan konsep-konsep baru yang saya pelajari tanpa bantuan orang lain.</i>	1	2	3	4	5
2.19 I find that most of my courses are not related to my job knowledge and skills. <i>Saya mendapati kebanyakan kursus-kursus saya tidak berkaitan dengan pengetahuan dan kemahiran kerja saya.</i>	1	2	3	4	5
2.20 I find my job responsibilities or tasks limit my study time. <i>Saya mengenalpasti bahawa tugas dan tanggungjawab kerja membataskan masa ulangkaji pembelajaran saya.</i>	1	2	3	4	5
2.21 I can memorize better if I relate new concepts to my job knowledge or skills. <i>Saya boleh menghafal dengan lebih baik jika saya cuba menghubungkan konsep-konsep baru dengan pengetahuan dan kemahiran pekerjaan saya.</i>	1	2	3	4	5
2.22 The evaluation (assessment) of my assignments reflects my work experience application and competencies. <i>Penilaian terhadap kerja kursus saya menggambarkan aplikasi pengalaman bekerja dan kecekapan saya.</i>	1	2	3	4	5
2.23 I cannot concentrate in class because of fatigue from my job responsibilities. <i>Saya tidak boleh menumpukan perhatian di dalam kelas disebabkan keletihan/bebanan tugas kerja.</i>	1	2	3	4	5
2.24 I often miss class because of my job responsibilities. <i>Saya kerap tidak hadir ke kelas disebabkan oleh tugas kerja.</i>	1	2	3	4	5
2.25 I find I can get by in most assessment by memorizing key sections rather than trying to understand them <i>Saya mendapati saya boleh menyiapkan tugas-tugas dengan menghafal isi-isi penting, bukan memahaminya.</i>	1	2	3	4	5
2.26 I take my courses just to get my degree. <i>Saya hanya belajar untuk memperoleh kelulusan diploma</i>	1	2	3	4	5
2.27 I am happy if I get good grades even though do not fully understand the material. <i>Saya gembira jika saya memperolehi keputusan yang baik walaupun saya tidak memahami keseluruhan pembelajaran sepenuhnya.</i>	1	2	3	4	5

	Strongly Disagree Sangat tidak setuju	Slightly Disagree Agak tidak setuju	Unsure Tidak Pasti	Moderately Agree Agak Setuju	Strongly Agree Sangat setuju
2.28 I tend to memorize facts and procedures rather than distinguish principles or concepts. <i>Saya lebih cenderung untuk menghafal prosedur dan fakta-fakta daripada mengenali perbezaan prinsip-prinsip atau konsep.</i>	1	2	3	4	5
2.29 Instructors help me to integrate my job knowledge and skills into the course content in class <i>Pensyarah membantu saya untuk menghubungkan pengetahuan dan kemahiran pekerjaan saya dalam kandungan kursus di dalam kelas.</i>	1	2	3	4	5
2.30 I try to apply my job knowledge and skills in problem solving activities in class. <i>Saya cuba mengaplikasikan pengetahuan dan kemahiran pekerjaan saya dalam aktiviti penyelesaian masalah di dalam kelas.</i>	1	2	3	4	5
2.31 I hope the learning experience here will make me more independent and self confident <i>Saya berharap pengalaman belajar yang diperolehi menjadikan saya lebih berdikari dan berkeyakinan</i>	1	2	3	4	5
2.32 I mainly need the qualification to enable me to get a good job when I finish <i>Saya memerlukan kelayakan akademik untuk mempermudah saya mendapatkan pekerjaan yang baik selepas saya tamat pengajian.</i>	1	2	3	4	5
2.33 I want to learn things which might let me help people, and/or make a difference in the world <i>Saya ingin belajar perkara-perkara yang membolehkan saya membantu orang lain atau/dan memberikan perubahan kepada dunia</i>	1	2	3	4	5

3. How do you best describe your feelings during the transition from work to school? <i>Bagaimanakah anda menggambarkan perasaan anda sewaktu di dalam peralihan daripada pekerjaan kepada pengajian?</i>	Very little Terlalu sedikit	Some Lebih kurang	Quite a bit Agak banyak	Very much Terlalu banyak
3.1 This isn't one of those times in my life when I really feel propelled to make changes. <i>Ini bukanlah pertama kali di dalam hidup saya di mana saya merasakan terdorong untuk melakukan perubahan dalam kehidupan saya.</i>	1	2	3	4
3.2 I have never been able to go through any transition very easily. I doubt I will this time. <i>Saya tidak pernah melalui peralihan dengan mudah. Saya ragu-ragu untuk melakukannya pada kali ini.</i>	1	2	3	4

	Very little Terlalu sedikit	Some Lebih kurang	Quite a bit Agak banyak	Very much Terlalu banyak
3.3 The risks of working and studying seem too great given my current resources and the potential pay-offs. <i>Mengambil kira sumber kewangan semasa dan pulangan yang dijangkakan, risiko bekerja sambil belajar adalah sangat besar.</i>	1	2	3	4
3.4 I don't feel that I have the talent to make this transition and feel good about it. <i>Saya tidak yakin bahawa saya mempunyai kebolehan untuk melakukan peralihan ini dan berpuas hati mengenainya.</i>	1	2	3	4
3.5 In dealing with aspects of working and studying, I am unsure whether I can handle it. <i>Dalam menguruskan aspek pekerjaan dan pembelajaran pada masa yang sama, saya tidak pasti saya mampu melaksanakannya dengan sempurna.</i>	1	2	3	4
3.6 The risk of studying whilst working is high but I am willing to take the chance. <i>Risiko belajar sambil bekerja adalah tinggi tetapi saya bersedia untuk mengatasinya</i>	1	2	3	4
3.7 Even though there are risks, I think there is a realistic hope of finding a better future. <i>Sekali pun ada risiko, saya berpendapat saya mempunyai harapan untuk masa hadapan yang lebih baik</i>	1	2	3	4
3.8 My effort, creativity, and motivation will lead me to academic success. <i>Usaha, kreativiti dan motivasi saya akan membawa kejayaan akademik bagi diri saya.</i>	1	2	3	4
3.9 Even though the solution to this transition is not readily apparent, I believe I will successfully work through it. <i>Walaupun penyelesaian terhadap peralihan ini tidak begitu jelas, namun saya yakin saya akan berjaya menghadapinya.</i>	1	2	3	4
3.10 People whom I respect have said they think I can make this transition successfully. <i>Individu-individu yang saya hormati menyatakan saya boleh berjaya dalam melakukan peralihan ini.</i>	1	2	3	4
3.11 It is hard for me to juggle this transition given my responsibilities toward people in my life. <i>Dengan tanggungjawab yang dipikul terhadap individu-individu dalam kehidupan saya, peralihan ini adalah sangat sukar bagi diri saya.</i>	1	2	3	4
3.12 My family is important to me, but I do not place that much importance on their desires with regard to this transition. <i>Keluarga merupakan perkara paling penting bagi saya tetapi saya tidak begitu menitikberatkan kemahuan mereka dalam peralihan ini.</i>	1	2	3	4
3.13 The magnitude of this transition is impossible to deal with. <i>Peralihan ini adalah terlalu besar dan adalah mustahil untuk saya menghadapinya</i>	1	2	3	4

4.1 How many courses are you taking this semester?
Berapakah bilangan kursus yang anda ambil semester ini?

4.2 About how many hours do you spend in a typical 7-day week doing each of the following?
Berapa lamakah anda memperuntukan masa untuk melakukan perkara-perkara di bawah dalam seminggu?

- a. Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)

Persediaan kelas (belajar, membaca, menulis, melakukan kerja sekolah atau kerja makmal, menganalisa data, berlatih dan melakukan aktiviti-aktiviti akademik yang lain)

Less than 1
Kurang dari 1 jam

1-5

6-10

11- 15

16-20

21-25

26- 30

More than 30 hours
melebihi 30 jam

- b. Working *bekerja*

Less than 1
Kurang dari 1 jam

1-5

6-10

11- 15

16-20

21-25

26- 30

More than 30 hours
melebihi 30 jam

- c. Participating in social activities (clubs, community activities)

Melibatkan diri dalam aktiviti-aktiviti sosial (persatuan, program komuniti)

Less than 1
Kurang dari 1 jam

1-5

6-10

11- 15

16-20

21-25

26- 30

More than 30 hours
melebihi 30 jam

- d. Relaxing and socializing (watching TV, partying, etc) *Berehat dan bersosial (menonton TV, bersuka-ria)*

Less than 1
Kurang dari 1 jam

1-5

6-10

11- 15

16-20

21-25

26- 30

More than 30 hours
melebihi 30 jam

- e. Providing care for dependents living with you (parents, children, spouse, etc.)

Menyediakan penjagaan kepada pasangan dan ahli keluarga (ibu-bapa, anak-anak, pasangan, lain-lain)

Less than 1
Kurang dari 1 jam

1-5

6-10

11- 15

16-20

21-25

26- 30

More than 30 hours
melebihi 30 jam

- f. Commuting to your institution (driving, walking, etc) *Berulang-alik ke institusi anda untuk belajar (memandu, berjalan, lain-lain)*

Less than 1
Kurang dari 1 jam

1-5

6-10

11- 15

16-20

21-25

26- 30

More than 30 hours
melebihi 30 jam

Section B: Personal and Employment Information
Maklumat peribadi dan pekerjaan

1. Gender <i>Jantina</i>		<input type="checkbox"/> Male <i>lelaki</i>	<input type="checkbox"/> Female- <i>perempuan</i>
2. Write your year of birth <i>Tuliskan tahun lahir anda</i>			
3. Marital status <i>Taraf perkahwinan</i>		<input type="checkbox"/> married <i>berkahwin</i>	<input type="checkbox"/> single <i>bujang</i>
		<input type="checkbox"/> divorced <i>bercerai</i>	
4. How many children do you have? <i>Berapakah bilangan anak anda?</i>		<input type="checkbox"/> None <i>Tiada</i>	<input type="checkbox"/> 1-2 <input type="checkbox"/> 3-4 <input type="checkbox"/> more than 4 <i>melebihi 4</i>
5. What is your current semester? <i>Apakah semester pengajian anda?</i>			
6. What is your program? <i>Apakah program pengajian anda?</i>			
7. Using a 4-point scale, what is your overall grade point average? <i>Dengan menggunakan skala 4, apakah keseluruhan purata markah anda (GPA)?</i>			
<input type="checkbox"/> 3.75 – 4.00 (mostly A's <i>keseluruhan A's</i>) <input type="checkbox"/> 3.25 – 3.74 (about half A's and half B's <i>separuh A's & separuh B's</i>) <input type="checkbox"/> 2.75 – 3.24 (mostly B's <i>keseluruhan B</i>) <input type="checkbox"/> 2.25 – 2.74 (about half B's and half C's <i>separuh B's & separuh C's</i>) <input type="checkbox"/> 1.75 – 2.24 (mostly C's <i>keseluruhan C's</i>) <input type="checkbox"/> 1.25 – 1.74 (about half C's and half D's <i>separuh C's & separuh D's</i>) <input type="checkbox"/> Less than 1.25 (mostly D's or below <i>keseluruhan D's ke bawah</i>)			
8. How long have you been working? <i>Berapa lamakah anda sudah bekerja?</i>		<input type="checkbox"/> none <i>Tiada</i>	<input type="checkbox"/> 1-3 <input type="checkbox"/> 4-6 <input type="checkbox"/> 7-10 <input type="checkbox"/> more than 10 years <i>melebihi 10 tahun</i>
9. What is your job designation? <i>Apakah pekerjaan anda?</i>			
10. How would you rate your overall satisfaction with your job? <i>Bagaimanakah anda menilai tahap kepuasan kerja?</i>		11. What is your current monthly salary? <i>Berapakah gaji bulanan anda?</i>	
<input type="checkbox"/> Very satisfied <i>Sangat berpuas hati</i> <input type="checkbox"/> Somewhat satisfied <i>Agak berpuas hati</i> <input type="checkbox"/> Somewhat dissatisfied <i>Agak tidak puas hati</i> <input type="checkbox"/> Very dissatisfied <i>Sangat tidak puas hati</i>		<input type="checkbox"/> RM1000 and below <i>RM 1000 ke bawah</i> <input type="checkbox"/> RM 1001 – RM 2000 <input type="checkbox"/> RM 2001 – RM 3000 <input type="checkbox"/> Above RM 3000 <i>Atas RM 3000</i>	

12. Which of the following work activities occupied at least 10 percent of your time during a typical work week on this job? (Mark 'yes' or 'no' for each item) <i>Antara aktiviti-aktiviti berikut, yang manakah memenuhi sekurang-kurangnya 10 peratus daripada masa seminggu anda bekerja? Tandakan 'Ya' atau 'Tidak' bagi setiap item</i>		Yes Ya	No Tidak
Accounting, finance, contracts <i>akaun, kewangan, kontrak</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design equipment, processes, structures, models <i>Reka-bentuk alatan, proses-proses, struktur, model</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computer programming, systems or applications development <i>Pengaturcaraan komputer, sistem atau perkembangan aplikasi</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human resources including recruiting, personnel development, training <i>Pengurusan sumber manusia termasuk pengambilan pekerja, peningkatan diri, latihan.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Managing or supervising people or project <i>Pengurusan atau penyeliaan pekerja atau projek</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Production, operations, maintenance (e.g. chip production, operating lab equipment) <i>Pengeluaran, operasi, penyelenggaraan (cth. pengeluaran cip, pengendalian perkakas makmal)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Professional services (e.g. healthcare, counseling, financial services, legal services) <i>Perkhidmatan profesional (cth. penjagaan kesihatan, kaunseling, perkhidmatan kewangan, perkhidmatan yang dibenarkan)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sales, purchasing, marketing, customer service, public relations <i>Jualan, pembelian, pemasaran, perkhidmatan pelanggan, perhubungan awam</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality or productivity management <i>Pengurusan kualiti atau produktiviti</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teaching <i>Mengajar</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Others (please specify) <i>Lain-lain (sila nyatakan)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. What is the highest level of academic education that your parent(s) completed? <i>Apakah tahap pendidikan tertinggi yang diperolehi kedua ibu-bapa anda? (tandakan yang berkenaan)</i>	Father (Bapa)	Mother (Ibu)	14. What types of financial support do you receive? (Mark all that apply) <i>Apakah jenis bantuan kewangan yang anda terima? (tandakan yang berkenaan)</i>
Did not complete high school <i>Tidak tamat sekolah menengah</i>	<input type="checkbox"/>	<input type="checkbox"/>	Financial support from parents, spouse, other relatives, not to be repaid <i>bantuan kewangan daripada ibu-bapa, pasangan, saudara-mara, tidak perlu pembayaran semula</i>
Graduated from high school <i>lepasan sekolah menengah</i>	<input type="checkbox"/>	<input type="checkbox"/>	Loans from financial institutions or government <i>pinjaman daripada institusi-institusi kewangan atau kerajaan</i>
Attended college but did not complete degree <i>tidak tamat peringkat kolej</i>	<input type="checkbox"/>	<input type="checkbox"/>	Financial assistance from your employer <i>bantuan kewangan daripada majikan</i>
Completed a bachelor's degree (B.A., B.S., etc.) <i>Lepasan ijazah (B.A., B.S., lain-lain)</i>	<input type="checkbox"/>	<input type="checkbox"/>	Earnings from employment <i>Daripada pendapatan pekerjaan</i>
Completed a master's degree (M.A., M.S., etc.) <i>Lepasan ijazah sarjana (M.A., M.S., lain-lain)</i>	<input type="checkbox"/>	<input type="checkbox"/>	
Completed a doctoral degree (Ph.D., J.D., M.D., etc.) <i>Lepasan ijazah doktor falsafah (Ph.D., J.D., M.D., lain-lain)</i>	<input type="checkbox"/>	<input type="checkbox"/>	

APPENDIX B. APPROVAL LETTER FROM HUMAN SUBJECT INSTITUTIONAL
REVIEW BOARD

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office of Research Assurances
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

DATE: June 15, 2009

TO: Norhayati Ibrahim
41 Schilletter Village, Apt. B

CC: Steven Freeman
104 I Ed II

FROM: Jan Canny, IRB Administrator
Office of Research Assurances

TITLE: **The Impact of Work Experience on Adult Learners' Academic Success in Malaysian Polytechnic Institutions**

IRB ID: 09-240 **Study Review Date:** 7 June 2009

The Institutional Review Board (IRB) Chair has reviewed this project and has declared the study exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b). The IRB determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as proposed in the IRB application**, including obtaining and documenting (signed) informed consent if you have stated in your application that you will do so or if required by the IRB.
- **Any modification of this research should be submitted to the IRB on a Continuing Review and/or Modification form, prior to making any changes**, to determine if the project still meets the Federal criteria for exemption. If it is determined that exemption is no longer warranted, then an IRB proposal will need to be submitted and approved before proceeding with data collection.

Please be sure to **use the documents with the IRB approval stamp** in your research.

Please note that you must submit all research involving human participants for review by the IRB. **Only the IRB may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

FOR IRB USE ONLY			IRB ID: ⁰⁹ 08-240
	EXEMPT Per 45 CFR 46.101(b): 2	Minimal Risk <input checked="" type="checkbox"/>	Review Date: 6/7/09

ISU EXEMPT STUDY REVIEW

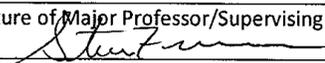
ORIGINAL

IRB
MAY 04 2009

SECTION I: GENERAL INFORMATION

Principal Investigator (PI): Norhayati Ibrahim		Phone: 515-572-4155	Fax:
Degrees: Doctoral Degree	Correspondence Address: 41 Schiletter Village Apt B, Ames		
Department: Agricultural and Biosystem Engineering		Email Address: iyati@iastate.edu	
Center/Institute:		College: Agriculture	
PI Level: <input type="checkbox"/> Faculty <input type="checkbox"/> Staff <input type="checkbox"/> Postdoctoral <input checked="" type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student			

Title of Project: The Impact of Work Experience on Adult Learners' Academic Success in Malaysian Polytechnic Institutions.
Project Period (Include Start and End Date): [05/01/09] to [12/31/10]

FOR STUDENT PROJECTS	
Name of Major Professor/Supervising Faculty: Steven Freeman	Signature of Major Professor/Supervising Faculty: 
Phone: 515-294-9541	Campus Address: 104 I Ed II
Department: ABE	Email Address: sfreeman@iastate.edu
Type of Project: (check all that apply)	
<input type="checkbox"/> Research <input type="checkbox"/> Thesis <input checked="" type="checkbox"/> Dissertation <input type="checkbox"/> Class project <input type="checkbox"/> Independent Study (490, 590, Honors project) <input type="checkbox"/> Other—Please specify: _____	

KEY PERSONNEL

List all members and relevant experience of the project personnel. This information is intended to inform the committee of the training and background related to the specific procedures that each person will perform on the project.

NAME & DEGREE(S)	SPECIFIC DUTIES ON PROJECT	TRAINING & EXPERIENCE RELATED TO PROCEDURES PERFORMED, DATE OF TRAINING
✓ Norhayati Ibrahim	Principal Investigator	ISU Human Subjects Training, 02/20/2009
✓ Steven A. Freeman	Major Professor	ISU Human Subjects Training, 07/20/2000

FUNDING INFORMATION

Internally funded, please provide account number:
Externally funded, please provide funding source and account number:
Funding is pending, please provide OSPA GoldSheet ID:
Title on GoldSheet if different from above:
Other: <i>e.g., funding will be applied for later, project not funded.</i>
Student Project—no funding or funding provided by student No funding of

SCIENTIFIC REVIEW

Yes No Has or will this project receive peer review?

If the answer is "yes," please indicate who did or will conduct the review: POS Committee

If a review was conducted, please indicate the outcome of the review: Positive- ready for study to move forward

COLLECTION OR RECEIPT OF SAMPLES

Will you be: (Please check all that apply.)

Yes No Receiving biological samples from outside of ISU? See examples below.

Yes No Sending biological samples outside of ISU? See examples below.

Examples include: genetically modified organisms, body fluids, tissue samples, blood samples, pathogens.

If you will be receiving samples from or sending samples outside of ISU, please identify the name of the outside organization(s) and the types of samples you will be sending or receiving outside of ISU:

ASSURANCE

- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subjects or welfare of animal subjects are protected. I will report any problems to the appropriate assurance review committee(s).
- I agree that I will not begin this project until receipt of official approval from all appropriate committee(s).
- I agree that modifications to the originally approved project will not take place without prior review and approval by the appropriate committee(s), and that all activities will be performed in accordance with all applicable federal, state, local and Iowa State University policies.

CONFLICT OF INTEREST

ISU's Conflict of Interest Policy requires that investigators and key personnel disclose any significant financial interests or relationships that may present an actual or potential conflict of interest. A conflict of interest can be defined as a set of conditions in which an investigator's or key personnel's judgment regarding a project (including human or animal subject welfare, integrity of the research) may be influenced by a secondary interest (e.g., the proposed project and/or a relationship with the sponsor). By signing this form below, you are certifying that all members of the research team, including yourself, have read and understand ISU's Conflict of Interest policy as addressed by the ISU Faculty Handbook (<http://www.provost.iastate.edu/faculty>) and have made all required disclosures.

Yes No Do you or any member of your research team have an actual or potential conflict of interest?

Yes No If yes, have the appropriate disclosure form(s) been completed?

SIGNATURES



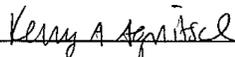
Signature of Principal Investigator Date May 1, 2009



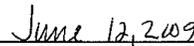
Signature of Department Chair Date May 1, 2009

FOR IRB USE ONLY:

- Project is exempt.
- Project is not exempt.



IRB Reviewer's Signature



Date

SECTION II. EXEMPTION CATEGORY

The following categories and sub-parts are eligible for exempt status review.

Check all applicable categories and sub-parts below. To select a category box, double-click on the check box.

PLEASE NOTE:

All procedures for all subjects in a project must be exempt in order for the project to be reviewed for exemption (i.e., all of the activities that participants will be asked to participate in must be found in one or more of the following categories).

Exemption does not apply if the targeted populations for the research will involve individuals who are legally incompetent, significantly mentally ill or impaired, or those who are vulnerable to extraordinary institutional coercion, such as prisoners, residents of 24-hour nursing facilities or anyone who is involuntarily confined.

Investigators whose research projects involve procedures which do not fit within an exempt category will be asked to complete the ISU New Human Subjects Review Form.

Investigators conducting research that fits into the exempt categories of research are not required to obtain a volunteer's consent to participate using an informed consent document containing all of the elements of consent. However, the IRB requires that the following items be included in an informed consent document or letter of introduction: a statement that the project involves research; a statement that participation is voluntary; a statement that the participant may skip any questions they do not feel comfortable answering in a survey; and the measures that will be used to ensure confidentiality of data collected in the research.

- Education Practices:** Research conducted in established or commonly accepted educational settings, involving normal educational practices is exempt when:
- research is on regular and special education instructional techniques, or
 - research is on the effectiveness of, or the comparison among, instructional techniques, curricula, or classroom management methods.
- Educational Tests:** Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement) is exempt if:
- in the researcher's private data (including field notes), as well as in any published material, information taken from these sources is recorded in such a manner that subjects *cannot* be identified, directly or through identifiers linked to the subjects; or
 - the information, if disclosed outside of the research, could *not* reasonably place the subject at risk of criminal or civil liability or be damaging to the subject's financial standing, employability, or reputation.

- Surveying or Interviewing:** Research involving, or interview procedures of, adult-aged subjects is exempt if:
- in the researcher's private data (including field notes), as well as in any published material, *responses are recorded anonymously* and in such a manner that the human subjects *cannot* be identified, directly or through identifiers linked to the subjects; **or**
 - the responses, if disclosed outside of the research, could *not* reasonably place the subject at risk of criminal or civil liability or be damaging to the subject's financial standing, employability, or reputation.
- This exemption does not apply if the subjects are minor children or other vulnerable participants.**
- Public Observations:** Research involving observation of public behavior is exempt if:
- in the researcher's private data (including field notes), as well as in any published material, information taken from these sources is recorded in such a manner that subjects *cannot* be identified, directly or through identifiers linked to the subjects; **or**
 - the information, if disclosed outside of the research, could *not* reasonably place the subject at risk of criminal or civil liability or be damaging to the subject's financial standing, employability, or reputation.
- This exemption applies to research involving minor children only when the investigator does not participate in the activities observed. Workplace meetings and activities, as well as classroom activities, are not considered "public behavior."**
- Public Officials:** All research involving educational tests, survey or interview procedures, or public observations is exempt when the respondents are elected or appointed public officials or candidates for public office.
- Managers and staff in public agencies are not "public officials" in most cases.**
- Existing Data:** Research involving the collection of existing data, documents, records, pathological or diagnostic specimens is exempt if:
- these sources are publicly available, **or**
 - in both the researcher's private data (including field notes) and in any published material, the information is recorded by the researcher in such a manner that subjects *cannot* be identified, directly or through identifiers linked to the subjects.
- Taste and Food Quality:** Research on taste and food quality evaluation and consumer acceptance studies is exempt if:
- wholesome food without additives will be used, **or**
 - the food contains a food ingredient that is at or below the level found to be safe, or agricultural chemical or environmental containment at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

III. PROTOCOL INFORMATION

1. Please outline the study procedures including a complete description of how subjects will be involved and what type of data collection method will be used. Include study dates, the number of individuals contacted to participate in the study, as well as the number of subjects actually enrolled in the study. Attach a copy of all data collection instruments including surveys, interview or focus group questions, etc.

This study will use survey methodologies. To increase clarity during data collection, the instrument will use dual languages, English and Malay. The translation was done by Zafirah Mohd Noor (a graduate student of Iowa State University from Malaysia – native language Malay), Halimah Ismail (a lecturer from one of the polytechnics in Malaysia) and Norazman Mohd Isa (a manager from one of the Malaysian companies). The study procedures are as follows:

1. Formal approval for conducting the survey has been obtained from the Director of the Department of Polytechnic and Community College Education in Malaysia. The department will determine which polytechnics are to participate in the study. The number of participants will depend on the enrollment lists of the selected polytechnics. It is anticipated to contact approximately 800 students and expected to receive 500 respondents.
2. The researcher will contact the coordinator of the part-time program and academic advisors from the selected polytechnics to explain the process and instructions related to the survey.
3. The questionnaire (in a sealed envelope), the letter of introduction, and an envelope for the submission will be distributed to students during scheduled classes through their academic advisors. Students will be informed that the purpose of the study is to assess student's perception of the impact of work experience on their academic learning.
4. Instructions in both languages on how to complete the questionnaires will be given and each student will be requested to return the completed questionnaires in a provided envelope and seal it before he/she submit to his/her academic advisor. It will take approximately thirty minutes to complete the questionnaires.

2. List characteristics of your study population (i.e., ages, student status, gender, ethnicity, etc.) and your rationale for choosing them for the study. (Studies with vulnerable populations such as children, adolescents, prisoners, or other institutionalized individuals are not eligible for exempt review.)

The population in this study is part-time students (non-traditional students) at polytechnics in Malaysia. Currently, the estimated enrollment is about 2700 students in thirteen polytechnics across the country (Department of Polytechnic and Community College Education [DPCCE], 2008).

Most of the part-time students in polytechnic institutions have at least one of the following characteristics: working, over the age of 21, married, and have children (personal communication, December 3, 2008).

The sample will be randomly selected to represent different class ranks and various majors in technical education. They are selected to provide a broader perspective of the impact of work experience on their academic learning.

3. Describe any potential risk and assess its level of likelihood and seriousness. Risks could be physical, psychological, social, or legal and can include minor discomfort and/or embarrassment. Describe the procedures to be used for protecting against or minimizing any potential risk, including the risks to disclosure of confidentiality.

The participants will not be exposed to any risk by participating in this study. They are requested to respond to questions related to their own perceptions on the impact of work experience on their academic success. Their responses will not in any way jeopardize their studies or employments.

Records identifying the participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken:

- i) Questionnaires will not contain names. Once the data file is complete, all identifiers will be deleted prior to any analysis.
- ii) Only the principal investigator and the major professor will have access to the data.
- iii) The computer data will be stored on the principal investigator's personal computer, while printed data will be stored in a locked file cabinet.
- iv) All data will be kept for one year after completion of the study.
- v) If the results are published, your identity will remain confidential.

4. Describe the informed consent process to be used for the study. Attach copies of consent forms, information sheets and/or letters of introduction that will be used. Also attach any documents that will be used for advertising purposes.

A Waiver of Documentation of Consent is requested to secure the participants identities. However, the letter of introduction will be attached to each questionnaire that will include the following information: (1) a statement that the project involves research; (2) a statement that participation is voluntary; (3) a statement that the participant may skip any questions they do not feel comfortable answering in a survey; (4) the measures that will be used to ensure confidentiality of data collected in the research. The participants will be given time to read the letter of introduction before they respond to the questionnaires. Consent will be implied if the participants return the questionnaire. (see attached)

IRB ID# 09-240**REQUEST FOR WAIVER OF DOCUMENTATION OF CONSENT**

Principal Investigator Name:	Norhayati Ibrahim
Phone Number:	515-572-4155
E-mail Address:	iyati@iastate.edu
Title of Study:	The Impact of Work Experience on Adult Learners' Academic Success

Iowa State University's Institutional Review Board (IRB) may waive the requirement for obtaining a signed informed consent document from each research participant if the investigator can provide specific reasons that the research meets regulatory criteria. *The IRB will make the final determination as to whether or not a waiver is appropriate based on the information provided by the investigator.*

Please note: A waiver of documentation of consent only means you do not have to have participants sign a document prior to their participation. Participants must still be given an opportunity to give consent to participate in the research and must be provided sufficient information upon which they can base their decision. A waiver of documentation is not a waiver of the consent process.

Please describe with details specific to your research how your research study satisfies the criteria listed in either #1 or #2 (a) & (b) below. The space will expand as you type.

1. The only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality.
Justification:
2. (a) The research presents no more than minimal risk of harm to subjects.
Justification: The participants will not be exposed to any risk by participating in this study. They are requested to respond to questions related to their own perceptions on the impact of work experience on their academic success. Their responses will not in any way jeopardize their studies or employments.
(b) <u>And</u> , involves no procedures for which written consent is normally required outside of the research context.
Justification: Participation in this study is completely on a voluntary basis. If they return the survey, they are consenting to participate.



Principal Investigator's Signature

May 1, 2009

Date

**APPENDIX C. APPROVAL LETTER FROM THE DEPARTMENT OF
POLYTECHNIC AND COMMUNITY COLLEGE EDUCATION**



**PUSAT PENYELIDIKAN DAN PEMBANGUNAN POLITEKNIK DAN KOLEJ KOMUNITI
JABATAN PENGAJIAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENGAJIAN TINGGI MALAYSIA**

Aras 10, Heritage Office Tower
Jalan SB Dagang
43300 Seri Kembangan
Selangor Darul Ehsan

Tel : 603-8939 4000
Faks : 603-8939 4045
Website : <http://jppkk.mohe.gov.my>



Ref: KPT/JPPKK-PPPPKK/100-17/1 (17)
Date: 2nd June 2009

**Director,
Office Of Research Assurance,
Office of the Vice President for Research,
Iowa State University**

Dear Sir,

**APPROVAL TO CONDUCT STUDY IN MALAYSIAN POLYTECHNIC
INSTITUTIONS (IRB ID: 09-240)**

The above matter referred.

This is to inform that Mrs Norhayati Ibrahim, a doctorate student at Iowa State University, Iowa, USA, is given the permission to conduct her study entitled "The Impact of Work Experience on Adult Learners' Academics Success" in our institutions.

Thank you.

Sincerely,

(Dr. ABDUL RAHIM BIN AHMAD)

Director
Research and Development Centre
Department of Polytechnic and Community College Education
Ministry of Higher Education.

APPENDIX D. STATISTICAL RESULTS

Scatter plot Age Vs CGPA - curvilinear relationship.

GET

FILE='C:\Users\iyati\Documents\dissertation mac10\data analysis\data\dat_doutliers_1015.sav'.

GRAPH

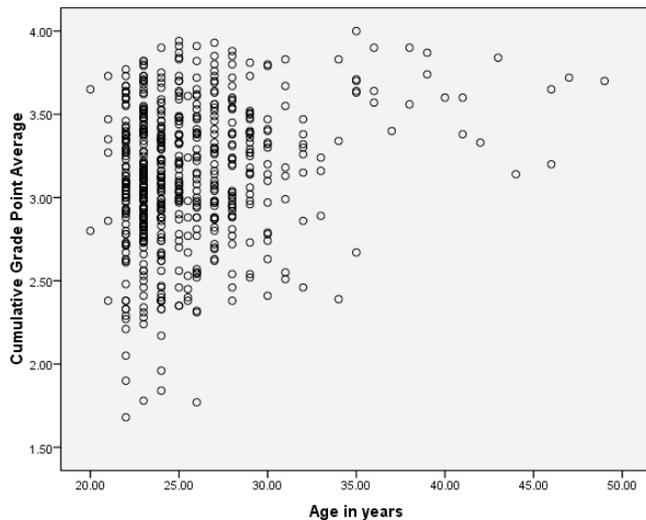
/SCATTERPLOT(BIVAR)=DAGE WITH CGPA

/MISSING=LISTWISE.

Graph

		Notes
Output Created		10-Nov-2010 19:43:36
Comments		
Input	Data	C:\Users\iyati\Documents\dissertation mac10\data analysis\data\dat_doutliers_1015.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	610
Syntax		GRAPH /SCATTERPLOT(BIVAR)=DAGE WITH CGPA /MISSING=LISTWISE.
Resources	Processor Time	0:00:03.448
	Elapsed Time	0:00:07.191

[DataSet1] C:\Users\iyati\Documents\dissertation mac10\data analysis\data\dat_doutliers_1015.sav



Multiple Regression Analysis: Demographic characteristics and employment variables.

COMPUTE DAGE2=DAGE * DAGE.

EXECUTE.

UNIANOVA CGPA BY DFIN DGEN WITH DAGE DAGE2 DCHL DSEX

/METHOD=SSTYPE(3)

/INTERCEPT=INCLUDE

/CRITERIA=ALPHA(0.05)

/DESIGN=DFIN DGEN DAGE DAGE2 DCHL DSEX.

Univariate Analysis of Variance

		Notes
Output Created		10-Nov-2010 19:51:42
Comments		
Input	Data	C:\Users\iyati\Documents\dissertation mac10\data analysis\data\dat_doutliers_1015.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	610
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA CGPA BY DFIN DGEN WITH DAGE DAGE2 DCHL DSEX /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /CRITERIA=ALPHA(0.05) /DESIGN=DFIN DGEN DAGE DAGE2 DCHL DSEX.
Resources	Processor Time	0:00:00.094
	Elapsed Time	0:00:00.118

[DataSet1] C:\Users\iyati\Documents\dissertation mac10\data analysis\data\dat_doutliers_1015.sav

Between-Subjects Factors

		Value Label	N
Financial Resources	1	othersources	198
	2	unknown	24
	3	earnings	386
first generation	1	first generation	538
	2	unknown	23
	3	not first generation	47

Tests of Between-Subjects Effects

Dependent Variable: Cumulative Grade Point Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.154 ^a	8	1.144	7.383	.000
Intercept	6.207	1	6.207	40.047	.000
DFIN	1.501	2	.751	4.844	.008
DGEN	.276	2	.138	.891	.411
DAGE	4.328E-5	1	4.328E-5	.000	.987
DAGE2	.045	1	.045	.288	.592
DCHL	.886	1	.886	5.714	.017
DSEX	1.067	1	1.067	6.887	.009
Error	92.834	599	.155		
Total	6075.543	608			
Corrected Total	101.988	607			

a. R Squared = .090 (Adjusted R Squared = .078)

```

UNIANOVA CGPA BY DFIN DGEN WITH DAGE2 DCHL DSEX
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/PRINT=ETASQ HOMOGENEITY PARAMETER
/PLOT=RESIDUALS
/CRITERIA=ALPHA(.05)
/DESIGN=DFIN DGEN DAGE2 DCHL DSEX.

```

Univariate Analysis of Variance**Notes**

Output Created		10-Nov-2010 19:52:52
Comments		
Input	Data	C:\Users\iyati\Documents\dissertation mac10\data analysis\data\dat_doutliers_1015.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	610
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		UNIANOVA CGPA BY DFIN DGEN WITH DAGE2 DCHL DSEX /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /PRINT=ETASQ HOMOGENEITY PARAMETER /PLOT=RESIDUALS /CRITERIA=ALPHA(.05) /DESIGN=DFIN DGEN DAGE2 DCHL DSEX.
Resources	Processor Time	0:00:01.841
	Elapsed Time	0:00:02.053

[DataSet1] C:\Users\iyati\Documents\dissertation mac10\data analysis\data\dat_doutliers_1015.sav

Between-Subjects Factors

		Value Label	N
Financial Resources	1	othersos	198
	2	unknown	24
	3	earnings	386
first generation	1	first generation	538
	2	unknown	23
	3	not first generation	47

Levene's Test of Equality of Error Variances^a

Dependent Variable: Cumulative Grade Point Average

F	df1	df2	Sig.
1.101	8	599	.360

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + DFIN + DGEN + DAGE2 + DCHL + DSEX

Tests of Between-Subjects Effects

Dependent Variable: Cumulative Grade Point Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	9.154 ^a	7	1.308	8.452	.000	.090
Intercept	325.916	1	325.916	2106.437	.000	.778
DFIN	1.505	2	.752	4.862	.008	.016
DGEN	.277	2	.138	.895	.409	.003
DAGE2	1.808	1	1.808	11.685	.001	.019
DCHL	.952	1	.952	6.153	.013	.010
DSEX	1.076	1	1.076	6.951	.009	.011
Error	92.834	600	.155			
Total	6075.543	608				
Corrected Total	101.988	607				

a. R Squared = .090 (Adjusted R Squared = .079)

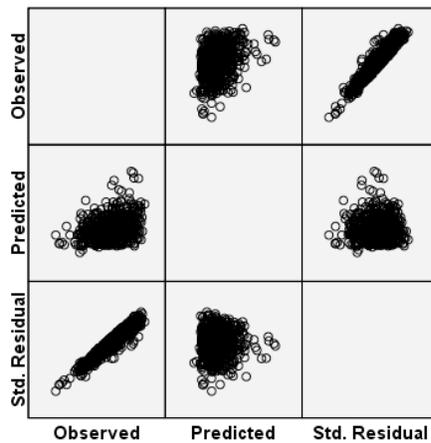
Parameter Estimates

Dependent Variable: Cumulative Grade Point Average

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Intercept	2.977	.079	37.866	.000	2.823	3.132	.705
[DFIN=1]	-.102	.035	-2.949	.003	-.170	-.034	.014
[DFIN=2]	-.143	.111	-1.279	.202	-.361	.076	.003
[DFIN=3]	0 ^a	.	.	.	.	.	.
[DGEN=1]	.053	.061	.866	.387	-.067	.172	.001
[DGEN=2]	.156	.122	1.274	.203	-.085	.397	.003
[DGEN=3]	0 ^a	.	.	.	.	.	.
DAGE2	.000	8.137E-5	3.418	.001	.000	.000	.019
DCHL	.117	.047	2.481	.013	.024	.210	.010
DSEX	-.094	.036	-2.637	.009	-.165	-.024	.011

a. This parameter is set to zero because it is redundant.

Dependent Variable: Cumulative Grade Point Average



Model: Intercept + DFIN + DGEN + DAGE2 + DCHL + DSEX

```

UNIANOVA CGPA BY DFIN DGEN EJREL ESAL EWYR WITH DAGE2 DCHL DSEX EJSAT
/METHOD=SSTYPE(3)
/INTERCEPT=INCLUDE
/PRINT=ETASQ HOMOGENEITY PARAMETER
/PLOT=RESIDUALS
/CRITERIA=ALPHA(.05)
/DESIGN=DFIN DGEN DAGE2 DCHL DSEX EJREL ESAL EWYR EJSAT.

```

Univariate Analysis of Variance

Notes		
Output Created		10-Nov-2010 19:55:05
Comments		
Input	Data	C:\Users\iyati\Documents\dissertation mac10\data analysis\data\dat_doutliers_1015.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	610
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
Syntax		<pre> UNIANOVA CGPA BY DFIN DGEN EJREL ESAL EWYR WITH DAGE2 DCHL DSEX EJSAT /METHOD=SSTYPE(3) /INTERCEPT=INCLUDE /PRINT=ETASQ HOMOGENEITY PARAMETER /PLOT=RESIDUALS /CRITERIA=ALPHA(.05) /DESIGN=DFIN DGEN DAGE2 DCHL DSEX EJREL ESAL EWYR EJSAT. </pre>
Resources	Processor Time	0:00:01.670
	Elapsed Time	0:00:02.170

[DataSet1] C:\Users\iyati\Documents\dissertation mac10\data analysis\data\dat_doutliers_1015.sav

Between-Subjects Factors

		Value Label	N
Financial Resources	1	othersos	198
	2	unknown	24
	3	earnings	386
first generation	1	first generation	538
	2	unknown	23
	3	not first generation	47
job related to prog	1	related	462
	2	unknown	30
	3	not related	116
current monthly basic salary	1	Below 1000 Malaysian Ringgit (RM)	61
	2	RM 1000 - RM 2000	422
	3	Above RM 2001	109
	4	unknown	16
Number of years working	1	more than 3 years	260
	2	unknown	11
	3	3 years & below	337

Levene's Test of Equality of Error Variances^a

Dependent Variable: Cumulative Grade Point Average

F	df1	df2	Sig.
1.091	80	527	.288

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + DFIN + DGEN + DAGE2 + DCHL + DSEX + EJREL + ESAL + EWYR + EJSAT

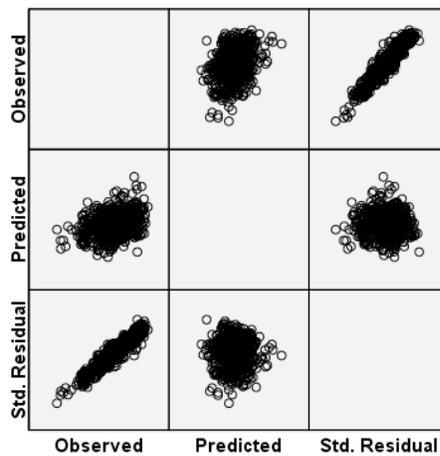
Tests of Between-Subjects Effects

Dependent Variable: Cumulative Grade Point Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	12.096 ^a	15	.806	5.310	.000	.119
Intercept	105.258	1	105.258	693.188	.000	.539
DFIN	.949	2	.475	3.125	.045	.010
DGEN	.317	2	.158	1.042	.353	.004
DAGE2	.720	1	.720	4.740	.030	.008
DCHL	.430	1	.430	2.830	.093	.005
DSEX	1.465	1	1.465	9.650	.002	.016
EJREL	.376	2	.188	1.240	.290	.004
ESAL	.843	3	.281	1.851	.137	.009
EWYR	.260	2	.130	.855	.426	.003
EJSAT	.566	1	.566	3.729	.054	.006
Error	89.893	592	.152			
Total	6075.543	608				
Corrected Total	101.988	607				

a. R Squared = .119 (Adjusted R Squared = .096)

Dependent Variable: Cumulative Grade Point Average



Model: Intercept + DFIN + DGEN + DAGE2 + DCHL + DSEX + EJREL + ESAL + EWYR + EJSAT

Parameter Estimates

Dependent Variable: Cumulative Grade Point Average

Parameter	B	Std. Error	t	Sig.	95%	95%	Partial Eta Squared
					Confidence Interval	Confidence Interval	
					Lower Bound	Upper Bound	
Intercept	2.822	.153	18.429	.000	2.522	3.123	.365
[DFIN=1]	-.084	.035	-2.412	.016	-.152	-.016	.010
[DFIN=2]	-.103	.115	-.897	.370	-.329	.123	.001
[DFIN=3]	0 ^a	.	.	.	.	.	.
[DGEN=1]	.035	.061	.574	.566	-.085	.154	.001
[DGEN=2]	.182	.126	1.443	.149	-.066	.429	.004
[DGEN=3]	0 ^a	.	.	.	.	.	.
DAGE2	.000	8.893E-5	2.177	.030	1.895E-5	.000	.008
DCHL	.083	.050	1.682	.093	-.014	.181	.005
DSEX	-.112	.036	-3.106	.002	-.182	-.041	.016
[EJREL=1]	.059	.042	1.413	.158	-.023	.142	.003
[EJREL=2]	-.008	.082	-.094	.925	-.169	.154	.000
[EJREL=3]	0 ^a	.	.	.	.	.	.
[ESAL=1]	-.091	.120	-.760	.448	-.327	.145	.001
[ESAL=2]	.030	.112	.269	.788	-.189	.249	.000
[ESAL=3]	.063	.118	.537	.591	-.168	.294	.000
[ESAL=4]	0 ^a	.	.	.	.	.	.
[EWYR=1]	.051	.042	1.226	.221	-.031	.133	.003
[EWYR=2]	-.057	.140	-.412	.681	-.332	.217	.000
[EWYR=3]	0 ^a	.	.	.	.	.	.
EJSAT	.050	.026	1.931	.054	-.001	.100	.006

a. This parameter is set to zero because it is redundant.

Basic Statistical Measures for Perceived Influence of Work Experience Items

Q	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
01	3.39	1.206	-.348	.099	-.898	.198
02	4.75	.539	-2.563	.099	7.951	.198
03	4.25	.863	-1.358	.099	2.229	.198
04	4.49	.641	-1.213	.099	1.791	.198
05	4.09	.849	-1.073	.099	1.540	.198
06	3.97	.865	-.717	.099	.533	.198
07	4.26	.759	-1.011	.099	1.413	.198
08	4.07	.796	-.969	.099	1.614	.198
09	4.31	.695	-.916	.099	1.421	.198
10	4.16	.789	-.911	.099	1.064	.198
11	3.75	.927	-.462	.099	-.146	.198
12	4.45	.784	-1.582	.099	2.606	.198
13	4.03	.809	-.698	.099	.409	.198
14	3.97	.791	-.685	.099	.669	.198
15	4.11	.745	-.778	.099	1.054	.198
16	3.90	.811	-.699	.099	1.034	.198
17	2.93	1.190	.046	.099	-1.061	.198
18	3.07	1.053	-.089	.099	-.759	.198
19	2.97	1.211	-.035	.099	-1.063	.198
20	3.62	1.167	-.607	.099	-.622	.198
21	3.88	.830	-.596	.099	.423	.198
22	3.70	.871	-.659	.099	.542	.198
23	3.10	1.251	-.125	.099	-1.150	.198
24	2.28	1.300	.634	.099	-.888	.198
25	2.82	1.149	.125	.099	-.871	.198
26	2.60	1.375	.400	.099	-1.162	.198
27	2.88	1.288	.138	.099	-1.143	.198

Q	Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
28	3.01	1.019	-.054	.099	-.679	.198
29	3.91	.833	-.800	.099	.877	.198
30	3.82	.815	-.649	.099	.692	.198
31	4.46	.658	-1.318	.099	3.087	.198
32	4.40	.815	-1.574	.099	2.676	.198
33	4.38	.741	-1.309	.099	2.399	.198

ACKNOWLEDGEMENTS

First and foremost, I express my utmost gratitude to Allah for granting me the strength to persevere throughout this scholarly pursuit. Completing this journey not only demanded me to give all that I have, but also helped me to realize that I have a lot to be thankful for in life especially my family, friends and faculty.

I would like to convey my great appreciation to:

- My academic supervisor, Dr. Steve Freeman whom I could not have done this without. My enormous appreciations for your valuable professional direction and guidance, patience and endless encouragement. You taught me the true meaning of scholarly work. I will always remember that we are not trying to solve the world problems but just doing small part within our knowledge or expertise. Your bank of knowledge has been a tremendous resource for me. Above all, thank you for being a good listener, giving me with the confidence I needed and providing all the constructive comments on my academic work.
- My dissertation committee members, Dr. Shelley, Dr. Schwab, Dr. Mickelson, Dr. Loren who always have been generous with their time and efforts to review my work timely. Thank you for all constructive feedback and continued guidance.
- My beloved parents, Jemiah Kassim (Mak) and Ibrahim Hussin (Abah) for their enduring love. From my early childhood, you ingrained in me the value of knowledge and hard work. May my academic accomplishment be one of the rewards for all their sacrifices in giving me the best possible education.

- My husband, Norazman Mohd Isa for your understanding and encouraging me to seize the opportunity to broaden my horizons although we had to be half-a-world apart for all these years. Many thanks for continually reminding me what the whole journey meant to us as a family.
- All my children - Nadhirah, Farah, Khairul and Akmal for understanding the challenges I faced in juggling between my parental responsibilities and academic pursuit. It is my hope that from what we went through together each one of you learned that we have to make sacrifices to fulfill our dreams in life.
- All my family, colleagues, and friends especially Mohd. Isa and Kamariah (my father and mother-in-law), Faridah Mustafa and Kamarudin M. Tamin, Halimah Ismail, and Norhayati Zakaria) back in Malaysia for all your prayers and sustained encouragement. Special thanks to the Director of Research and Development Center, Dr. Abdul Rahim and part-time program coordinators, lecturers, and students at the four polytechnics for your contribution in my data collection.
- Norzuwana Sumarjan (Anor) and Mohd Radzi, Ungku Fatimah, Siti Noridah for being the closest family in Ames who I could always count on for help and support with just about everything.
- Malaysian student community in Ames for all your personal assistance.
- My former superiors – En. Kamaruzaman, Mr. Tung, Datuk Hj. Yusuf, En. Amir, and Pn. Raihanah for your guidance and confidence in me to manage intellectually challenging tasks. Going through the challenges, I have strengthened my analytical thinking skills, the skills that helped me tremendously to survive the journey. Truly, the experience working with all of you inspired me to work on a topic that mattered to me

both professionally and personally.

- All my professors at Iowa State University who helped me to further develop my thinking skills and overcome my shyness. Thank you for your generosity in sharing your knowledge. From all of you I learned to appreciate diversity in the classroom and life.

To all of you, from the very bottom of my heart, I say thank you.