ATHABASCA UNIVERSITY

INVESTIGATING SELF-DIRECTED LEARNING READINESS, PRIVATE TUITION AND ORGANISATIONAL LEVEL AMONG WORKING ADULT SINGAPOREANS

BY

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The future of learning.

Approval of Dissertation

The undersigned certify that they have read the dissertation entitled

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Dedication

Dedicated to the kind souls who gently touch people's lives and whose selfless good deeds, although priceless, go uncredited as they humbly choose anonymity.

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While putting words to paper, I quickly realised that drafting the acknowledgements section of a doctoral thesis is a risky proposition because such an achievement is only possible through the selfless contribution of many more allies than those who were directly involved in the process leading to it. Including, without omission, every helping hand and every moral supporter is only part of this tricky task; apparently, the order of each mention also matters, as if individual contributions could fairly be quantified, compared and ranked.

To avoid committing some unforgiveable *faux-pas*, these acknowledgements are therefore breaking away from these established traditions and the benefactors are mentioned in an order that does not necessarily reflect the relative significance of their support.

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Abstract

Cited in the literature as one of the more fundamental principles of andragogy, self-directed learning attributes to all adult learners an inclination towards assuming more responsibility for, and taking control of their own learning. A substantial body of research has examined the degree of self-directed learning readiness (SDLRS) in various national, cultural and institutional contexts but none has so far examined, as this study did, the extent of self-directed learning readiness among working adult Singaporeans and to further explore the correlations between their SDLRS score, prior exposure to private tuition and the organisational level that they occupy at work. Three main conclusions were reached. Firstly, when compared to other adults worldwide, working adult Singaporean learners were found to be below-average self-directed learners. Secondly, a prior exposure to private tuition in primary and secondary school was found to be negatively correlated to their readiness for learning self-direction. For private tuition attended during secondary school however, that relationship was found to be only marginally significant. Thirdly, the organisational level that working adult Singaporeans achieved at work was positively correlated to their self-directed learning readiness, but, again, that finding was only marginally significant. However, the SDLRS mean score difference between managers and non-managers was found to be significant. This research concludes with a number of recommendations pertaining to the identification and support of students with a low-level of learning self-direction.

Keywords: adult learners, self-directed learning readiness, Singapore, private tuition, organisational level

Table of Contents

List of Tables

List of Figures

List of Abbreviations

DE	Distance Education.
ODL	Open and Distance Learning.
ODUE	Open & Distance Education University of Europe, a pseudonym given to a previous partner university of the participating institution.
SBI	Singapore Business Institute, a pseudonym of a private education institution linked to the participating institution.
SBZ	School of Business of the participating institution.
SDL	Self-Directed Learning.
SDLR	Self-Directed Learning Readiness.
SDLRS	Self-Directed Learning Readiness Scale, developed by Dr. Lucy Guglielmino.
SGD	Singapore Dollar(s).
SSS	School of Social Services of the participating institution.
SRU	Singapore Republic University, a pseudonym given to the university where the research was conducted, also called the “participating institution” or the “participating university”.

Chapter I: INTRODUCTION

Overview

This study explores the self-directed learning readiness of working adult Singaporeans and investigates the extent of its relationship with two education and work-related variables: the learners' prior exposure to private tuition and the organisational level that they have achieved at work.

In that pursuit, the research uses a quantitative approach built upon a two-part, cross-sectional survey designed to answer the essentially correlational research questions of the study. The first part of the survey used the Self-Directed Learning Readiness Scale (SDLRS) survey instrument to measure the participants' self-directed learning readiness (SDLR) while the second part collected education, work-related as well socio-demographic data. A non-probabilistic, self-selection sampling approach was used to draw participants from a population of working adult students enrolled in part-time, undergraduate degree programmes offered by the Singapore Republic University (SRU), the participating institution. Prior to data collection, ethical clearances were obtained from the Research Ethics Board of Athabasca University (AU-REB), the study project supervising institution, as well as from the Institutional Review Board of the participating university, the institution where the research was conducted. These ethical clearances were duly renewed every year, as required by the ethics boards of these two institutions.

The introductory chapter of this proposal will now discuss the broader context of the study, followed by an outline of the study significance and purpose as well as an overview of the research questions that were drafted to fulfil it. This first chapter will then conclude with a brief review of the conceptual framework underlying this research.

Background

Since the purpose and problem that this study aims to address are largely situated within the broader domains of distance and online education, it is useful to briefly review some of the more relevant historical and socio-economic factors that explain how and why working adults have increasingly turned to online and blended learning as well as other forms of distance education (DE) to upgrade their skills (Ross-Gordon, 2011; Stokes, 2006).

Brief history of distance education.

Moore and Kearsley (2005) distinguish five generations in the history of DE, most of them having evolved thanks to and following the dissemination of one or more enabling technologies.

When correspondence studies, the first generation of DE, started in the early 1880s, they provided the first off-campus alternative for learners who could not attend regular face-to-face classes, either because they were geographically or socially isolated or simply because their personal or professional obligations prevented them from committing their time to fixed classroom schedules.

From a technological perspective, correspondence courses, like later generations of DE, only became a viable option to traditional teaching and learning practices after the development of a supporting technology, in this instance the advent of low-cost and reliable postal services that were essential for the predictable delivery of books and printed material to home-bound individuals. As new media technologies emerged, correspondence studies eventually included other teaching and learning media such as audiocassettes, CD-ROMs, and DVDs, also delivered by post (Moore & Kearsley, 2005; Williams, 2003).

From a learner standpoint, one that, incidentally, is particularly relevant to the context of this study where self-directed learning is a core element of analysis, it is interesting to note that the increasing popularity of correspondence courses eventually led university circles to refer to

them as *independent studies*, pointing then to what would later be identified as a central characteristic of learning self-direction. In the early 1960s, Wedemeyer extended the concept of distance education beyond correspondence courses and built it into the theory of independent study, where learner autonomy and self-determination, two key features of self-directed learning, predominate (Garrison, 2000; Wedemeyer, 1971).

Moore and Kearsley (2005) identified four other generations of DE, namely: broadcast radio and television, the Open University, teleconferencing and finally, computer and internet-based virtual classes. Although interesting, a more detailed historical review of all of these landmark periods in DE would fall beyond the scope of this study. The ensuing discussion will therefore be limited to the most recent DE generation as it is more immediately relevant to the blended learning environment investigated in this research work, a teaching and learning context specific to the institution under investigation that combines online, computer-based teaching and learning with traditional, face-to-face instruction, both generally complemented by feature characteristics of correspondence studies.

As the fifth generation of DE, computer and internet-based learning is tied to the development of the internet, a 1969 USA department of defence project that set up the ARPANET (Advanced Research Projects Agency Network), a secure network linking computers located at military operations, universities, and defence contractors that was designed to facilitate between these entities the communication of highly-sensitive information in an access-restricted environment (Walden, 2003).

The Internet was initially used by an elite group of academics and scientists who, undaunted by its front-end complexity, were comfortable with arcane programming language and commands. Despite this initial obstacle to the widespread use of the Internet, the potential benefits of its underlying technology were so promising that it was only a matter of time before civil

applications were developed to make it accessible to the public at large. From 1993 onwards, user-friendly, internet front-end software applications called *web browsers* started to appear on computer desktops and with the addition of other Internet-linked technologies (such as instant messaging, gophers, and e-mails), the general population was soon able to tap into what became known as the worldwide web, an ever expanding source of information and knowledge that has since grown exponentially in terms of quantity, variety, and sophistication (Stewart, 1996).

With the propagation of the Internet throughout the general population, a number of higher education institutions started to offer web-based degree programs that, while initially experimental, did lay the foundations for later, more compelling alternatives to traditional, classroom-focused institutions (Moore & Kearsley, 2005). Eventually, teaching and learning at a distance via the Internet took hold and gradually earned the credibility it needed to become a legitimate mode of delivery. This is evidenced in particular by the growing number of accredited online and distance learning institutions, dual-mode institutions as well as reputed face-to-face academic varsities (such as Stanford and Harvard universities) that are increasingly developing courses for online delivery (Allen & Seaman, 2016; Radford, 2011).

Historical research studies on DE, such as those reviewed by Moore and Kearsley (2005), link the emergence of various forms of DE to technological advancements and then explain how they both contributed to social development. To provide a more complete portrait of the background to this study however, the following section will now briefly examine how the confluence of socio-economic factors promoted the growth of DE and gradually transformed the lives of working adults.

Socio-economic influences on distance education.

From the end of World War II until the early 1970s, the highest academic qualification that an individual would attain in his lifetime was generally earned before his first full-time

employment. During that period, a job-for-life clause was part of an informal but morally enforced psychological contract (Argyris, 1960; Levinson, 1962) that provided employees with wages, job security, and a career path in exchange for their work performance and sustained commitment to the organizations that hired them (Hiltrop, 1995).

Since most employer-employee relationships were established on a long-term basis, the labour market structure was not designed for extensive job mobility and therefore, fresh school leavers had to choose their first few post-graduation jobs carefully, knowing that these initial choices would often determine the industry, specialization and possible promotions that would form a career spent at the employment of a small number of organizations. Employers, on the other hand, knew that they could count on the long tenure of their employees and were hence more willing to develop the latter because the training costs incurred could predictably be recouped over many years of employee loyalty and increased productivity (Maguire, 2003).

During the last 40 years however, the rules dictating the employer-employee relationship have been drastically rewritten. The combined influences of globalization, international competitive pressures, and cost reductions redrafted the traditional psychological contract and forced organizations to develop much more flexible structures that largely excluded lifelong employment and made company-focused career planning less relevant (Robinson, 1996). Deprived of job security, employees were also reacquainted with the responsibility of satisfying the training and development needs of a career that could no longer be negotiated with a single or a few employers. Illustrating that point, Tan (2011) explains for instance that students graduating today should expect to have held more than 10 jobs by the age of 42 while earlier generations of workers were looking forward to a lifetime career built around 3 to 4 jobs.

Therefore, to meet the demands, in one or many industries, of a series of jobs that may or may not be related, working adults have had to accept that, unlike their forefathers, the educational

qualification that they obtained prior to entering the workforce could not keep them gainfully employed until retirement. This realization not only forced workers to constantly upgrade their skills to remain relevant in their current industry but to also acquire new ones to increase their mobility and versatility so as to become employable in others (Medel-Añonuevo, Ohsako, & Mauch, 2001).

Today, the options that working adults have to upgrade their skills or develop others depend on their personal circumstances and the continuing education opportunities that are accessible to them. For instance, a proportion of the working adult population may prefer part-time education to full-time studies because some of the opportunity costs of pursuing the latter (loss of salary, seniority, and work experience) are significantly higher than those of attending classes outside of working hours. Furthermore, working adults seem to be increasingly attracted to the time and space flexibility offered by distance and online education as they can concurrently upgrade their skills and continue to assume their other social and family responsibilities.

Academic institutions are increasingly responsive to these needs. For instance, among the factors affecting the decisions of degree-granting institutions to offer DE programmes, the National Center for Education Statistics (2008) identified the top two as: "(a) meeting the need for flexible schedules and (b) providing access to college for students who would otherwise not have access to it for geographic, family, or work-related reasons, etc." (p. 16)

Interestingly, the demand for online courses is not only good in periods of economic growth but it is particularly strong during economic downturns, outpacing even the demand for face-to-face courses. In a report on the state of online education in the US, Allen and Seaman (2010) mention that:

> many more institution[s] reported seeing an increase in demand for online courses and programs than for face-to-face in 2009. The same pattern is evident this year as well.

> Three quarters (74.5%) of all institutions say that they are seeing an increase in the demand for online courses and programs as a result of the current economic downturn. (p.14)

Background to the Problem

The discussion above indicates that in territorially large countries like Canada and USA, academic institutions have embraced DE to better serve the more remote and often smaller communities that have little or no access to the physical infrastructure and intellectual resources available in larger cities. For residents of these isolated communities, DE is not just one of a few teaching and learning alternatives: it is sometimes the only option available, besides the more cumbersome solution of moving to a city where traditional, face-to-face forms of lower and higher education are available (Moore & Tait, 2000). A 2004 Commonwealth of Learning report highlights this particular point:

> Providers and governments also make use of ODL [open and distance learning] to reach groups who could not otherwise be reached. Such provision may not necessarily be cheaper than other methods, but may be the sole option in certain cases. The classic example of this use of ODL would be distance learning for children living hundreds of miles from the nearest town or school. (Freeman, 2004, p. 10)

Hence, by necessity more than by choice, learners from these remote communities are frequently exposed to some form of DE from a very young age, an exposure that often continues through to young adulthood as they progress from primary to secondary and, for a significant number, to tertiary education. Their geographic reality not only makes a DE qualification socially more conventional than elsewhere but thanks to it, students from faraway communities may naturally develop an inclination for self-directed learning. Exposed to online education in their formative years, they learn early to be less dependent on the palpable and immediate teacher

support that their counterparts living in larger communities take for granted as, during the same period, they sit through traditional, face-to-face classroom teaching.

This reality does not apply everywhere however. From the same geographical and cultural standpoints, and for reasons that are explained below, very small countries like Singapore can hardly be considered to be ideal incubators for the domestic development and widespread adoption of DE.

With a land area covering a mere 712 km^2 and a resident population of 5 million (Department of Statistics Singapore, 2012), Singapore may be the world's third most densely populated country (The World Bank, 2017) but it is also a first-world economy with a well-developed and efficient public transportation system. In the Lion City therefore, learning at a distance cannot be justified by the same geographical determinisms that residents from larger countries must manage.

With an ethnic Chinese community representing more than 75% of the population of Singapore, it is hardly surprising that education in the city-state remains, to this day, strongly influenced by the Confucius philosophy, one that gives teachers such a pivotal role in their students' learning that teaching is considered "the most respected profession in society" (Hofstede, 1986, p. 313). The combination of teaching-centric learning with the generally passive and non-verbal attitudes of Asian students (Buraphadeja & Kumnuanta, 2011; Hwang, Ang, & Francesco, 2002) erects some formidable obstacles to the emergence of self-directed learning, obstacles that, since 1997, the Singapore government has attempted to overcome with various social and education policies.

For instance, the Singapore authorities have developed a number of successive national info-communication and technology (ICT) master plans so that the primary, secondary, and tertiary education institutions in the Lion City can rely on state-of-the-art technologies to design

and deliver courses encouraging students to acquire some degree of learning self-direction. Yet, despite articulating in its second (2003-2008) ICT Master Plan (Singapore Ministry of Education, 2002) a clear policy aimed at moving schools from a teacher-centric to a learner-centric pedagogy (Toh & So, 2011) and even after specifically reiterating in its third ICT Master plan (2009-2014) that one of the four desired outcomes of education in Singapore is "a self-directed learner who takes responsibility for his own learning, who questions, reflects, and perseveres in the pursuit of learning" (Singapore Ministry of Education, 2011a), the concrete results that have been achieved so far have yet to meet even the most conservative of these expectations. The fourth 2015 ICT master plan builds on the objectives of its predecessor by aiming to deepen the student's subject mastery and develop their 21st Century competencies, one of which being a self-directed learner (Singapore Ministry of Education, 2015c).

In that regard, it appears that most primary and secondary institutions continue to embrace a teacher-centric approach where students remain passive followers of a learning process in which they are still not expected to take a proactive role. The Singapore Minister for Education recognized that problem when he declared that; "'a gap continues to exist between familiarity with ICT and translating this into effective teaching" (Singapore Ministry of Education, 2008). In higher education, Tham and Tham (2011, p. 139) notes the pervasive presence of e-learning at Singapore's national universities, but concludes that "outdated pedagogy is employed in a rich technology environment" as the e-learning infrastructure is largely used as a knowledge resource repository (course materials, assignment drop-boxes, videos) and support for various interactions (discussion forums and chat rooms).

In Singapore, teacher-centred learning is not limited to the classroom. As competition for entry into better tertiary academic institutions is particularly fierce, parents of primary and secondary school students closely supervise their child's homework in the evenings and on

weekends. Besides taking over the teacher's role at home, many leave nothing to chance and complement their offspring's normal classroom lessons with additional private tuition sessions provided by a tutor for a fee, either to small groups enrolled at one of the more than 850 private tuition centres registered with Singapore's Ministry of Education (Tan, 2014a) or as private tuitions sessions offered on a one-to-one basis, usually conducted at the student's residence. Admittedly, there are slight variations in the teaching techniques employed in both group and private tuition situations but usually, the tutor's involvement remains central, direct, and constant in the learning experience of the students who tend to be remain passive participants who learn how and as they are told.

The apparently deeply-rooted resistance in Singapore to the adoption of a different teaching and learning approach should not, however, be reduced only to geo-cultural considerations. Teacher-centric education also prevails in the Lion City because it has produced convincing results that the international education community regularly salutes. Primary and secondary school students from Singapore not only perform well domestically, they also frequently appear in the top 10% of most international rankings for their performance in key academic subjects. For instance, 4th and 8th grade Singapore students rank at the top of a table of 49 and 38 countries respectively participating in comparative educational achievement studies published by the Trends in International Mathematics and Science Study (TIMSS) (Mullis, Martin, & Loveless, 2015). Furthermore, when, in 2009, Singapore was included for the first time in the OECD's Programme for International Student Assessment (PISA) involving 15-year old students from 65 countries, its students ranked 2nd, 4th, and 5th in mathematics, science and reading respectively (OECD, 2010). It outdid itself in 2015 when teenaged Singaporeans ranked at the top of the OECD PISA 2015 test comparing the results of students from 72 countries in science, maths, reading, and collaborative problem-solving (OECD, 2016).

As these international accolades are the results of traditional, teacher-centric, and classroom-based learning, the prospect of a genuine overture towards other learning modes appears unlikely in the Lion City. Even ODUE, one of the world's largest open and DE universities of Europe witnessed first-hand the Singaporeans' resistance to move away from teacher-centric education.

In 1991, ODUE concluded an agreement with the Singapore government to offer a degree qualification path to diploma-holding, primary, and secondary school teachers employed by the Ministry of Education. Yet, during the implementation phase of this agreement, ODUE allowed its local partner, the Singapore Business Institute to make fundamental changes to the mode of delivery of the ODUE degree courses so as to accommodate the reservations that Singaporeans hold towards distance and independent learning. As a result, and in stark contrast to the online and mostly asynchronous mode that the ODUE insisted upon for the delivery of its courses in other markets, including its domestic one in Europe, the ODUE courses offered in Singapore were stripped of most of their synchronous/asynchronous online components and were instead delivered through a series of thirteen face-to-face, classroom-based, two-and-a-half hour sessions (7 lectures and 6 tutorials). This special accommodation, one should further note, was not implemented on an experimental basis but covered all ODUE courses offered in Singapore and remained unchanged until 2002, throughout the 12-year duration of the partnership between ODUE and SBI.

Interestingly, although the ODUE apparently failed in this particular instance to promote its brand of DE, online learning did eventually take root in the republic. When the participating institution was founded in 2005, it initially followed the classroom delivery approach it had inherited from the collaboration between its predecessor and the ODUE. It did not take long however for the top academics at the participating institution to realize that an entirely face-to-face course delivery would no longer adequately serve the special needs and circumstances of working

adults, its target market, and hence, its part-time programmes and courses needed to gradually move away from traditional, exclusively face-to-face and instructor-centric teaching and learning.

Uncomfortable with the idea of delivering all its courses entirely online, the participating institution eventually developed its own blended learning model, one that borrowed features from online as well as traditional teaching and learning methods. At its inception in 2005, courses were delivered through 6 classroom-based, three-hour face-to-face sessions; they had no online teaching component and the online infrastructure was exclusively used as a repository for course material distribution and student assignment submissions. In 2010 however, the university started to partially move away from full face-to-face delivery and by 2015, a very significant proportion of its courses had completed a migration from 6 face-to-face sessions towards a blended learning delivery model of 3 face-to-face and 6 asynchronous online sessions.

Statement of the Problem

The previous section explained that the benefits of distance and blended learning education are well documented for countries where a proportion of the population lives in small and remote communities with scarce or non-existent education infrastructures. However, some of these benefits do not necessarily apply to every geographical and socio-demographic context, particularly to territorially smaller countries with little or no remote population.

This distinction aside, distance and blended learning modes of education are nonetheless gaining popularity throughout the world. Qayyum and Zawacki-Richter (2018) indicates that: “Generally speaking, the size of distance education is growing in many parts of the world as more people are enrolled in DE offerings” (p. 1). This is partly the result of the emergence and democratisation of enabling technologies such as the Internet as well as the need for the labour force to continuously upgrade their skills and develop new ones so as to remain relevant in current as well as new industries. This is particularly relevant to the context of the city-state of Singapore,

a small but nimble economy that can only remain ahead of its regional rivals by relying on higher value-add industries (Chia, 2018), an economic strategy based on the premise that the local workforce is and remains sufficiently skilled, competent, and qualified to attract these industries.

However, while traditional modes of face-to-face, teacher-led delivery may suffice for pre-employment education, the opportunity cost for working adult Singaporeans of giving up their employment to attend full-time, classroom-based education is simply too high. Furthermore, because it needs the on-going contributions of every member of its small working population, the Singapore economy cannot afford to have any significant proportion of inactive and unproductive workers being retrained through full-time, face-to-face education.

For all these reasons, the Singapore government encouraged the development of part-time programmes and courses delivered through a variety of online as well as hybrid or blended learning delivery modes. While the appropriate IT infrastructure is in place to support various forms of online and blended learning, their practical implementation remains problematic in the City-State because the learner's autonomy and self-direction that they promote are clashing with the reliance that Singaporeans have traditionally maintained towards teacher and tutor-led education, a cornerstone of the success of their education system.

Surprisingly, while the strategic direction set by the government is clearly aimed at developing self-directed learning (Singapore Ministry of Education, 2016), there is a dearth of published research work on the topic in the Singapore context. Yet, to overcome the resistance mentioned above and improve the likelihood that online and blended learning deliver the kind of low-opportunity-cost education solutions that the nation and the individuals seek, there is an imperative need to develop a better understanding of the existing level of learning self-direction among working adult Singaporeans and to explore how it may relate to other socio-demographic, work, and education-related variables, such as prior exposure to tutor-led private tuition.

Purpose of the Study

The participating institution's decision to move towards its own student-centric teaching and learning model relied on the fundamental but untested assumption that even if such a strategy represents a radical departure from the comfort of the island's traditionally teacher-centric education, Singaporeans are now ready, willing and able to take charge and assume more responsibility for their own learning.

In that context, the research aims to help the participating institution better understand the readiness for learning self-direction of a significant proportion of its target market, the working adult Singaporeans, and to measure how certain work and education-related variables might relate to their ability to cope with the institution's blended learning model where autonomous and independent learning plays a significant role.

Research Questions

To fulfil its purpose, the study will rely on a quantitative research method to answer the following questions:

Q. 1 What is the extent of self-directed learning readiness among working adult Singaporean learners?

Q. 2 Is there a statistically significant relationship, among working adult Singaporean learners, between their prior exposure to private tuition and their self-directed learning readiness?

Q. 3 Is there a statistically significant relationship, among working adult Singaporean learners, between the organisational level they achieved at work and their self-directed learning readiness?

Uniqueness and Significance of the Study

The study aims to make unique and potentially useful contributions to the current body of research on self-directed learning in South-East Asia and on unexplored relationships between SDLR and two work and education-related variables.

Firstly, although the literature review in this study has uncovered a number of prior studies examining self-directed learning in a variety of North American (mainly USA) and North-East Asian contexts such as Japan, South-Korea, China, and Taiwan, none however has so far investigated self-directed learning readiness among working adult Singaporeans nor examined its relationship to the Singaporean Chinese, Malay, and Indian races forming the core of its society.

Secondly, the existing body of research linking self-directed learning to work-related variables has largely focused on the relationships between SDLR and job performance or between SDLR and job categories. This study analyses SDLR in relation to the career achievement of individuals as defined by the organisational level that they have attained in their organisation.

Thirdly, the research is also unique in its investigation of the possible covariance between self-directed learning and a learner's prior exposure to private tuition. This supplementary, non-traditional form of instruction that, without being unique to Singapore's education system, is particularly widespread among students at primary and secondary school levels in Singapore.

The significance of the study however, extends beyond filling a gap in the current literature: it may also have potent practical ramifications. Institutions that are moving from traditional to blended and on to full online course delivery may use its findings to promote the systematic implementation of an SDLR assessment tool during the applicant selection process. This assessment could also complemented by the development of support and remediation tools as well as initiatives aimed at improving their students' SDLR prior to enrolment and throughout their studies in the blended learning environment promoted by the institution. These initiatives may also

trigger other changes in curriculum design and course delivery that better fit the needs and expectations of learners with lower levels of self-directed learning readiness.

Conceptual Framework

The theoretical framework of this study rests on two key concepts: andragogy, an adult learning theory, and self-directed learning.

Defined by Knowles as "the art and science of helping adults learn" (Knowles, 1980, p. 43), andragogy initially sought to differentiate itself from pedagogy by isolating a number of assumptions that were strictly applicable to adult learners. Knowles identified five of them: adults need to know why they should learn something, their experience in the learning process matters and its importance should be recognized and valued accordingly; adults want a learning that is focused on a problem, not on a decontextualized content; adults must understand the immediate or near-immediate relevance of their learning to their current personal or work circumstances and finally, adults want to assume responsibility for their own learning. A number of authors have argued that some if not all of these assumptions were not purely adult-specific (Brookfield, 1986; Elias, 1979) and Knowles later recanted on that assertion, conceding that some of these assumptions could also apply to pedagogy (Knowles, 1984b; Merriam, 2001).

Andragogy is relevant to this study as the last two of Knowles' andragogical assumptions (adults seeking more responsibility for their learning and a learning experience with immediate relevance to their personal or work-related circumstances) are closely related to self-directed learning, the other concept specifically pertinent to this research.

Self-directed learning originates from the work of Houle (1961) who is widely acknowledged as the first scholar to identify as *autonomous* learners a particular group of adults who took charge of their own learning. Later studies on learners' autonomy led to the development of the concept of self-directed learning and to a significant number of closely related terms,

creating in the process some confusion among researchers about their semantic differences and challenges in their effort to clearly differentiate between them.

Research on self-directed learning initially viewed the concept from a process perspective (individuals are self-directed learners if they carry out specific learning tasks and activities in a certain way) and later from a personality perspective (individuals are self-directed if they have specific personality traits or learning preferences). Regardless of the perspective taken however, self-directed learning is considered a defining element of adult learning, either as a characteristic of the way they actually learn, or the way that, developmentally, they should learn.

Both of these concepts, andragogy and self-directed learning, are discussed in more details in the literature review found in the next chapter.

Definitions of Terms

This research employs concepts that are defined here to avoid the possible confusion that could otherwise arise from the differing interpretations that they are sometimes given in the literature.

Traditional, online, and blended (hybrid) courses – In terms of delivery modes, courses can be categorized along a continuum delimited at one pole by traditional courses and, at the opposite end, by fully online courses while web-facilitated and blended courses fall somewhere in between (Rovai & Jordan, 2004). While such a continuum is helpful in identifying the relative position of each delivery mode, some felt a need to identify the exact threshold where one delivery mode becomes another.

For a series of annual survey reports started in 2002 and reviewing the state and progress of online learning in US higher education, Allen & Seaman (2010, 2011, 2012, 2013, 2015) developed specific descriptions of traditional, web-facilitated, blended, and online courses that are based on the proportion of the course content being delivered online (Table 1.1).

Table 1.1

Course Delivery Typology (Adapted from Allen & Seaman, 2016, p. 7)

Proportion of Content Delivered Online	**Type of Course**	**Typical Description**
0%	Traditional	Course with no online technology used – content is delivered in writing or orally.
1% to 29%	Web Facilitated	Course that uses web-based technology to facilitate what is essentially a face-to-face course. May use a course management system (CMS) or web pages to post the syllabus and assignments.
30% to 79%	Blended/ Hybrid	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has a reduced number of face-to-face meetings.
80% and above	Online	A course where most or all of the content is delivered online. Typically has no face-to-face meeting.

Allen and Seaman's typology has been adopted as the basis of statistical analyses in other reports (Lokken & Mullins, 2013) as well as in the terminology of other research articles (Arbaugh, 2010; Cejda, 2010). Yet, while their qualitative descriptions seem more immediately useful to differentiate the various types of courses, a closer look at the quantitative delimitations that accompany these descriptions does leave some observers rather perplex (Shimabukuro, 2012).

To overcome such arbitrary measures, Shimabukuro (2012) proposes that courses be subdivided into three categories: face-to-face courses with no online content would be deemed as traditional, those without any face-to-face instructions and the entirety of their content delivered online would be defined as online and finally, courses with any instruction and content delivery variations between these two poles should be deemed as blended.

Staker and Horn (2012) add students' control in their definition of blended learning:

> a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace and at least in part at a supervised brick-and-mortar location away from home. (p. 3)

Murphy et al. (2014) adopted the same definition in their blended learning report.

For the purpose of this study, blended learning adopts the key characteristics developed by Staker and Horn (2012) and is defined as a learning context combining online and face-to-face instruction where the students have some control over the time, place, path, and/or pace of their learning experience. The blended learning model of the institution where the research was conducted is further described under the methodology section.

Adult: For the purpose of this study therefore, adults are defined as individuals who have attained or are older than the chronological age of 21.

Working adult Singaporean learner: An adult Singaporean citizen or permanent resident above the age of 21 who, while being currently employed or having two years of working experience, is enrolled in a part-time undergraduate degree programme and taking courses offered by the School of Business (SBZ) or the School of Social Services (SSS) at the participating institution.

Self-directed learning (SDL) – A set of personal characteristics that individuals have or develop that centres on their desire or preference to assume responsibility for learning and that drives a process in which they will take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes.

It is important to note that even if this operational definition borrows some elements from the learning process perspective of self-directed learning, it deliberately focuses on learner's characteristics, the other perspective retained in the literature. Both conceptualizations of self-directed learning (learning process and individual characteristic perspective) are later discussed in the literature review.

Self-directed learning readiness (SDLR) – This study retains the self-directed learning readiness definition developed by Wiley (1983) who described it as "the degree the individual possesses the attitudes, abilities, and personality characteristics necessary for self-directed learning" (p. 182). A number of tools have been developed to assess self-directed learning readiness. Among the more commonly used, one finds Guglielmino's Self-Directed Learning Readiness Scale (SDLRS) and Oddi Continuing Learning Inventory (OCLI).

Private tuition – For the purpose of this research, private tuition is defined as follows: non-qualification bearing, part-time, one-to-one or small group, tutor-led instruction offered as remedial and/or supplementary sessions to help students cope with the school curriculum and/or improve their academic performance in the subjects covered in the national primary and secondary school curriculum, particularly those assessed during the end-stage primary, secondary, and pre-university national examinations, namely PSLE, GCE-O, and GCE-A level examinations.

A comprehensive review of the private tuition delivery and industry is provided in the literature review chapter of this study.

Organisational levels – They refer to the various hierarchical levels included entry-level positions as well as managerial level positions in organisations. For the latter, Robbins and Coulter (2014) identify three main managerial levels: first-line managers, middle managers, and top managers while others (Terry & Tharenou, 1998) add low-level managers as a fourth category placed between first-line and middle-manager levels. Because it makes a finer distinction between

the lower managerial levels found in larger organisations while remaining relevant to the structural reality of smaller firms, this study will retain the latter, four-level categorisation.

Summary

This section of the research proposal first reviewed how historical and socio-economic factors such as the changing psychological contract between organizations and their employees as well as the advent of the Internet, among others, may help understand why adult learners seeking new educational qualifications are increasingly looking towards various forms of DE to satisfy their needs.

It then explained that while DE was a widely-accepted fait accompli in some countries, the geographic reality of the small city-state of Singapore represents an obstacle to the widespread adoption of online and distance learning as much as its teacher-centric education culture is a challenge to the development of self-directed learners, despite the latter being an explicit aim of the island's Ministry of Education for the Singapore schools to achieve within the second decade of the 21st century.

It was also noted that DE failed to gain traction in the republic, even after the Open & Distance Education University of Europe (ODUE) started offering courses in Singapore through its partnership with a local institution. Eventually however, DE did take root in the Republic and the participating university, an institution dedicated to the educational development and skills upgrading of working adults, started moving away from fully traditional, face-to-face teaching, and learning and began implementing its own brand of blended learning where most courses offered only three face-to-face sessions and six online, asynchronous sessions. To increase the likelihood that this strategic decision overcomes the socio-cultural obstacles already highlighted, it is necessary to better understand, through further research, the extent of self-directed learning readiness in Singapore, a domain largely unexplored in the literature.

This study aims to improve that understanding by exploring the current level of self-directed learning readiness among working adult Singaporean learners and to further investigate the extent of the relationship between self-directed learning readiness and two selected work and education-related variables, namely: organisational levels and prior exposure to private tuition. A quantitative research method was used for this analysis as it is the most appropriate approach to effectively investigate correlational relationships between quantitatively measurable constructs and variables.

The next chapter will review the past and current literature on adult learning and self-directed learning, the two underlying concepts of the theoretical framework relevant to the scope and aims of this study. It will first examine the current body of research on self-directed learning (SDL), starting with an examination of the adult learning principles from which the latter emerged. The literature review will then discuss how prior research have studied SDL in relation to adult learners, instructors, and learning contexts before summarizing the findings of past studies focused on the development of instruments measuring self-directed learning readiness. A review of the research on the associative relationships between SDLRS score and a number of other variables will conclude this second chapter.

The third and fourth chapters are concerned with research methodology and data analysis, the fifth chapter reviews and discuss the study results in relation to the research questions and the final chapter concludes by making a number of recommendations that the participating institution can implement to help its students better adapt to its brand of teaching and learning model.

Chapter II: REVIEW OF THE LITERATURE

The study aims to investigate the self-directed learning readiness of working adult Singaporeans and explore the extent of its relationship to selected work and education-related variables.

To help locate this investigation within the broader domain of education research, this review begins with a brief discussion of the major assumptions that education theorists make about adult learners. A second segment will then cover the reality and practices of the private tuition phenomenon in the national education context of Singapore. The third and fourth sections will respectively examine the current state of the research on self-directed learning (SDL) and the literature covering two of the self-assessment instruments that researchers have developed to measure SDLR, namely Guglielmino's Self-Directed Learning Readiness Scale (SDLRS) and Oddi Continuing Learning Inventory (OCLI). The last section synthesizes the findings of the prior studies investigating the relationship between SDLR and selected work and education-related variables that are more relevant to those investigated in this study.

Adult Learning and Andragogy

As this study concerns working adult learners, it is appropriate to first delimit and briefly examine the theoretical context relevant to how adults learn.

Although adult learning can instinctively be traced back to the beginning of humanity, studies specifically concerned with the subject only began to emerge in the early 1960s when education theorists started to uncover in well-established pedagogical theories a number of incongruences that were at odds with the reality of adult learning.

Adult Learning.

It is in the scholarly work of Gibb (1960), one of the early pioneers in the field, that the founding principles of adult learning theory can first be found. In his research, Gibb posited that

an adult would find learning meaningful if it were both problem and experienced-centred, allowed learners to set their own learning goals, provided regular and timely feedback on their progression and afforded opportunities to reflect on the learning experience itself.

Inspired by Gibb, other researchers took a behaviourist stance. Miller (1964), for instance, argued that adults are only motivated to learn and change when they are exposed to behaviours contextually more adequate than their current demeanour. Aware of and dissatisfied with the status quo, they would seek to change their behaviour through practice and modelling, a learning process that would be more effective if supported by timely reinforcements and feedback.

A decade later, Kidd (1973) compiled a list of adult-specific learning concepts that included a natural inclination towards self-direction and the equalitarian relationship that adults seek to maintain with their teacher, along with other concepts that emerged from the physical, psychological and emotional differences that set an adult's life experiences and perspectives apart from those of a child.

Described as "speculative" by Brookfield (1984, p. 27), these initial efforts to delimit and define the domain of adult learning were followed by more empirically grounded studies. In a survey-based research study for instance, Knox (1977) highlighted the lifelong and usually informal nature of adult learning and cited the positive impact that feedback and learning pace control have on their learning achievement. In the same study, Knox also attempted to address some of the confidence-sapping issues that adult learners confront as they grow older (diminishing creativity, retention, critical thinking, and problem-solving abilities) and even though his findings were neither consistently reassuring nor entirely aligned with those of prior studies, Knox remained nonetheless optimistic that with time, support, and persistence, adults could learn anything they set their mind to.

In 1980, Brundage and MacKeracher (1980) synthesized the research literature from the previous decade and published an ambitious report in which they converted thirty-six adult-specific learning characteristics into as many principles that were then clustered into 9 distinct categories: physiological characteristics, self-concept, developmental states and transitions, past experience, paradox, emotions, stress and anxiety, time, motivation, learning styles, and abilities. The report paid special attention to the paradoxical effect of an adult's experience that can both facilitate and hinder learning and suggested that to prevent the latter, a teacher should not only respect and value his students' experience, but also acknowledge it as a learning resource in its own right.

Andragogy

While these and later studies each contributed in some fashion to the understanding of the cardinal principles of adult learning, none defined the field of research as significantly nor received the attention, support, and criticism that Malcolm Knowles generated with his discussion on andragogy that he defined as "the art and science of helping adults learn." (Knowles, 1980, p. 43).

Drawing on earlier reflections (Knowles, 1964, 1968), Knowles initially identified 4 assumptions about adult learners (Knowles, 1975, 1978, 1980), adding motivation to learn as a fifth one in 1984 (Knowles, 1984a) and, a few years later, he added the need to know as the sixth and last one (Knowles, 1989, 1990). These assumptions are:

(1) as it matures, an adult's personality evolves away from a self-concept of dependence towards one defined by increasing autonomy and self-direction;

(2) the life experiences that an adult gradually accumulates represent an expanding reservoir of increasingly rich learning resources;

(3) an adult readiness to learn is largely determined by the developmental tasks of his/her changing social roles;

(4) from spending his childhood and teenage years learning things that may only apply (much) later, an adult's time orientation shifts to the present; from postponed application, the adult therefore expects learning to be primarily problem-centred (as opposed to subject-centred) and to lead to an immediate application of the knowledge acquired.

(5) an adult's motivation to learn results from internal rather than external factors.

(6) before committing their time and energy to learn, adults need to know the benefits of learning something, as well as the pitfalls and eventual loss they might suffer from not learning it.

While Knowles seemed to gradually promote his andragogy from what he first termed a "model of assumptions" (Knowles, 1980, p. 43) to a more structured "system of concepts" (Knowles, 1984a, p. 8) to an even more established set of "modern principles" (Knowles, 1984b), other education theorists had more reserved views towards both the status and relative significance that these statements could legitimately aspire to gain in the research on adult education.

Some, for instance, questioned the assertion that andragogy was characteristically distinct from pedagogy (Brookfield, 1986; Elias, 1979). Other critics (Hartree, 1984) wondered if, as presented, Knowles' assumptions truly described adult learners as they are or, rather, as they should be. Others, finally, contended that defining the characteristics of an adult learner could hardly elevate principles of andragogy to the status of a genuine theory or model about how adults learn (Davenport & Davenport, 1985; Hartree, 1984).

Over the years, Knowles responded to his critics by recognizing certain context-specific omissions, by acknowledging that his assumptions could not be structured into a coherent model entirely separate from pedagogy and that without testing their validity and predictive attributes, the same assumptions could never amount to a genuine theory. Yet he, many education practitioners after him, and even some of his critics, refused to negate their relevance to the modern

realities of adult learning. Merriam and Caffarella (1999) sum up the general respect Knowles gained and recognize that his "assumptions regarding an adult's self-concept, experience, readiness to learn, problem-centred focus, and internal motivation all have some intuitive validity." (p. 286). Hence, even if these characteristics and assumptions do not form a coherent whole entirely supported by empirical research, each makes nonetheless a useful contribution to our understanding of adult learning. Once the limits noted by the critics of andragogy are acknowledged, it becomes reasonable to draw from the entire body of research on adult learning some broad conclusions relevant to the topic of this research.

In summary, adults are internally motivated learners who want a problem-centred learning that values and taps into their life experiences. While they expect instructors to treat them as equal, adult learners still need the solicited support and feedback that the latter may give. They are more willing and ready to learn when the knowledge they seek has an immediate application that helps them cope with the challenges of the current roles they assume and the developmental stages they experience. Finally, although this may be individual, context, and culture-dependent, adult learners want control over their learning experience and therefore seek one that affords them both autonomy and self-direction.

Private tuition

This section first reviews the key features of a general definition of private tuition found in the literature and combined them with the nuances and differences specific to Singapore's education context.

A review and discussion of Singapore's private education industry then follows, covering the demand and supply perspectives as well as the types of private tuition and methods used to deliver it.

General definition.

In the literature, private tuition, also known as *private tutoring* (Bray & Kwo, 2013), is often referred to as *shadow education* (Baker, Akiba, LeTendre, & Wiseman, 2001; Bray & Kwo, 2013; Dang, 2007; Dang & Rogers, 2008; Dongre & Tewary, 2015), a moniker not meant to cast doubt about the legality of private tuition as almost all forms are legal in most jurisdictions, including Singapore. Rather, private tutoring shadows public education because its existence is closely tied to the latter, its curriculum reflects the public school curriculum and in some societies, it has become an expected supplement to the learning that the students get from the public system (Bray & Kwo, 2013).

Dang and Rogers (2008) describes private tuition as "fee-based tutoring that provides supplementary instruction to children in academic subjects that they study in the mainstream education system" (p. 2). Kenayathulla (2013) defines it as "supplementary instruction outside the formal schooling system where the tutor teaches academic subjects for financial gain" (p. 629) adding that only academic subjects taught in mainstream schools are included. Finally, (Bray, 2003, p. 13) refer to private tuition as "tutoring in academic subjects (such as language and mathematics), and is provided by the tutors for financial gain and is additional to the provision by mainstream schooling" (p 13).

These definitions share a few common elements. All indicate that private tuition is a service involving the payment of a fee, implying a commercial transaction where a paid tutor provides tutees with some instruction meant to supplement academic subjects taught in public schools.

Related concepts.

There are variations to private tuition / private tutoring in the literature and those most often mentioned are coaching, remedial and enrichment classes.

Coaching, a type of private tuition, describes the short-term commercial instruction offered to younger adults preparing for the admission tests that colleges and universities require from their applicants: the SAT (Scholastic Aptitude Test), the ACT (American College Testing), the LSAT (Law School Admissions Test), the GRE (Graduate Record Examinations), the GMAT (Graduate Management Admissions Test), and TOEFL (Test of English as a Foreign Language) (Briggs, 2001; Zhang, 2013).

Usually offered exclusively to small groups of students at specialised commercial training centres, coaching sessions specialize on standardized international placement tests and focus more on developing assessment-taking skills than on content knowledge and comprehension. However, it is because of its almost exclusive focus on very specific standardized international tests and never on public school curricula that coaching is excluded from the working definition of private tutoring used in this study. Unlike the former, private tuition focuses on providing supplementary assistance to the public-school curriculum and it seeks to develop the students' content understanding as well as assessment-taking techniques.

As other forms of private tuition, Zhang (2013) adds remedial classes and enrichment classes, even when they are offered by the school where the student is enrolled, as long as extra fees are charged for them. Such remedial and enrichment classes do fall under the private tuition definition retained in this study but only with the caveat that in Singapore, teachers are only allowed to give 6 hours of private tuition per week, and such a service can only be provided outside of school hours to students not attending classes in the school where they teach (Singapore Ministry of Education, 2004).

The latter restrictions were likely put in place in Singapore to avoid the morally questionable private tutoring practices found in countries such as Cambodia, Cyprus, Lebanon, Indonesia, and Russia (Bray, 2007). In these countries, teachers are allowed to provide fee-based

tutoring services to their own students, after official class time. Such practices are highly controversial; they not only place the teacher in a position of conflict of interest but they also seriously undermine the value and effectiveness of the public school system.

For instance, it is common for teachers to deliberately slow down the pace of their class time delivery so as to only cover a relatively small portion of the curriculum. When this occurs, students cannot do well in class-time tests and exams without the additional, fee-paying tutoring assistance offered by these same teachers outside of the classroom (Kenayathulla, 2013). Furthermore, some teachers implicitly or explicitly blackmail daytime students who do not attend the after-school paying tuitions by penalizing them during class-time tests or by deliberately failing them to create or increase the demand for their tutoring services, etc. (Bray, 2007).

Having addressed remunerated private tuitions, one should note that private tuitions can and are sometimes offered for free in Singapore, although this only occurs in infrequent and often short-lived situations.

For instance, parents (and sometimes, older siblings) may provide one-on-one assistance to children in the very early stages of their primary school education. The duration of this type of tutoring support varies widely and depends on the family member's availability (in a large proportion of Singapore couples, both husband and wife hold full-time jobs) as well as how closely the assistance provided can follow the teaching and learning techniques that the child is being taught in school.

Benefits sought from private tuition.

Dongre and Tewary (2015) identified the three major benefits that parents generally seek when enrolling their child in private tuition sessions: more study time, personalized attention focused on overcoming specific academic weaknesses and achieving better academic results.

Firstly, Dongre and Tewary (2015) concluded that pupils attending private tuition study more as, on average, they attended 9 hours of private tuition per week, a period that translates into an extra 1.5 days of study. This assertion may or may not be verified empirically as it is not clear whether an assumption is made that those who do not attend private tuition are not using their free time to study.

Secondly, private tutors might be focusing on identifying the weaknesses of individual children and on teaching them, with the specific aim and purpose of addressing and correcting those shortcomings (Dang & Rogers, 2008; Kenayathulla, 2013). The one-to-one attention that a child receives during a private tuition session at home is clearly much more individualized than what a teacher can afford to offer at school. As for the private tuition delivered at tuition centres, while the focus might be divided among the number of tutees attending the same session, their number rarely exceeding 10 attendees, the individual support and guidance is still better in this much smaller group than it is in a normal 30 to 40-pupil classroom.

Singapore, a tuition nation.

In a publication prepared for the UNESCO, Bray (2003) identifies four different responses by national governments to the existence of private tuition.

Firstly, some governments simply choose to ignore the phenomenon, either by lack of resources or ability (Nigeria and Kenya), or by lack of willingness to manage it as they see or place private tuition beyond their area of responsibility (Japan and Canada). Bray (2003) explains:

> … the governments that ignore the phenomenon may again be divided into two groups. In one group are governments that are weak and simply do not have the capacity to police tutorial operations. Many African governments are in this category, including those of Nigeria and Kenya… In the other group in this category are governments that do have capacity to monitor and regulate tutoring, but which define it as outside their sphere of

> responsibility. They do this either because the sector is small and considered insignificant, or because they prefer to leave matters to market forces. The Canadian authorities, for example, neither monitor tutorial operations nor seek to control them. (pp. 63-64)

The response of the second group, on the other hand, goes to the other extreme and simply prohibits private tuition. This group seems to have dwindled in numbers as both South Korea and Tanzania have opted out of it and moved towards the approach taken by next group.

A third group of countries, such as in Hong Kong and Mauritius, recognizes and allows the existence of private tuition but regulates the industry so as to limit the negative impacts that it may have on the national education system.

Finally, a fourth group of national governments finds private tuition to be a positive and desirable component of the education system and are therefore actively encouraging it, although they are aware of the problematic issues affecting it.

Interestingly, along with Taiwan, it is in that fourth group that Bray (2003) places Singapore's response to the private tuition phenomenon. In a response to a question asked during a parliamentary session, the Ministry of Education confirmed this view when its Minister said: "Currently, there are no plans to regulate private tuition teachers or tuition agencies. Parents and students should exercise their discretion and carry out basic checks before engaging them, such as checking the credentials of tutors" (Singapore Ministry of Education, 2015a). Aside from requiring private tuition centres to register with the Ministry of Education, there are no other regulatory controls over these commercial entities.

While a lack of regulation would normally place Singapore in the first, laissez-faire group, it is the importance that the Ministry of Education explicitly places on the complementary role of private education to supplement public education that legitimately puts Singapore in the group of

national governments that actively encourages private tuition. When describing the education system, the Singapore Ministry of Education explains:

> The state is the principal provider of education at primary, secondary and tertiary levels. In the case of non-formal education, the private sector plays the complementary role of running continuing/supplementary education classes in commercial/business studies, computers, languages, fine arts, tuition, etc. (Singapore Ministry of Education, 2015a)

The supplementary status that the Singapore government grants to private tuition may have different sources but one of them is likely cultural. Kenayathulla (2013) but also Bray (2010) and Marginson (2011b) note that supplementary private tuition is most frequently found in Asian countries, particularly those that are influenced by Confucianism and those whose culture places great emphasis on effort, more than ability, as a determinant of success.

With a population divided along three ethnic lines where the Confucius-influenced Chinese community occupies more than 75% of the demographic landscape, it is hardly surprising that in Singapore, education not only takes centre-stage but also that all means to further one's education but also to improve academic performance are promoted (Bray, 2010).

Factors promoting private tuition in Singapore.

In Singapore, there are a few reasons why parents decide to either tutor, hire private tutors or send their child to private tuition centres.

During the first year of their child's formal education, parents often take up the tutor's role and within the limited time that they can set aside after work and during weekends, they provide the assistance and personalized attention they believe their child needs to do his/her homework. Soon after however, many parents turn to private tuition when they realize that they are less and less familiar with the content of the changing primary and secondary school curriculum and teaching methods. They also become aware that continuing to tutor their children would likely

confuse them because their teaching methods are often different from those used by their teacher in the classroom.

Secondly, although the primary 1 and 2 class size has been reduced from 40 to 30 pupils (Singapore Ministry of Education, 2012), it remains at 40 per class for the other primary and secondary school levels. As a result, the primary and secondary school teachers cannot deliver the degree of individualized attention that one-to-one private tuition sessions can ensure, neither can they achieve the degree of personalised support provided by centre-based tuition where most group sizes rarely exceeds 10 participants (Tan, 2009).

The individualized attention that parents require for their child has a few purposes, most of them tied to the need to ensure that academically, their child is not put at a disadvantage for lack of additional tuition support, especially not during primary and secondary schools (Tan, 2009).

Hence, for a significant proportion of students (Bray & Kwo, 2013), private tuition is the primary assistance that they seek, not so much to excel academically, but simply to survive in the Singapore's educational system (Kwan-Terry, 1991). The parents of these students will turn to private tuition to help their child who has difficulties coping with or is lagging behind the curriculum in one or more school subjects. A 2015 survey of 500 Singaporean parents who were sending their children to private tuition concluded that only 30% of them believe that tuition actually improve their child's academic performance, paradoxically leaving 70% of them not seeing a significant improvement in how their child was doing in school (Davie, 2015d).

The phenomenon is not limited to Singapore either. Baker et al. (2001) found that in 75% of the 41 countries participating in the Third International Mathematics and Science Study (TIMSS) in 1995, low math achievers relied significantly more often on private tutoring than high achievers, even after controlling for family income, student, and community characteristics.

However, while private tuition is popular among those experiencing difficulties keeping up with the school curriculum, there is an even larger group of students for which private tuition is beneficial, albeit for a different purpose: those already doing reasonably well academically (Bray & Kwo, 2013; Dongre & Tewary, 2015).

For this group of students, private tuition is a potently effective means to further improve their academic performance and increase their chances of excelling during primary and secondary regular school year assessments but, more importantly at the Singapore's PSLE, GCE-O and GCE-A levels examinations (Bray & Kwo, 2013).

Finally, there is also a subtler, culturally-entrenched reason behind the willingness of Singaporean parents to provide their child with additional supplementary lessons, a motivation that they may not be openly willing to having but that is linked to the fear that by not sending their child to private tuition, the latter may be not be able to compete against other children whose parents did send for after-class, supplementary lessons.

This phenomenon relates to a trait that is so entrenched in the Singapore culture that it even bears a name (kiasuism or being kiasu), an expression referring to "the fear of losing out to others" (Ortmann, 2009, p. 35) or "being afraid to lose or miss out on something in life" (Ellis, 2014, p. 238).

There are two sides to kiasuism. One is positive and, as Hwang et al. (2002) explains it, can be specifically linked to the display of good values such as the extra efforts that kiasu students put into their study and beyond what is required by their class assignments.

The other negative side of kiasuism, however, is socially frowned upon and this opprobrium explains why parents may not be willing to admit to being kiasu when sending their children to private tuitions. Being kiasu may reveal personal envy of others and lead to selfish behaviours (Oxford Dictionaries, 2015). Among students, being kiasu could be as subtle as rushing

to the library early to book seats for oneself and one's friends and as individualistic as deliberately moving specific library books away from their coded shelf so that others would not be able to access and consult them (Hwang et al., 2002).

Having reviewed some of the reasons behind the popularity of private tuition, it is now appropriate to briefly look into the end point of the efforts, time, and other resources that parents and child invest for the latter's academic success: the milestones, national examinations that are held at the end of the primary, secondary, and college (pre-university) education.

At the end of 6 years of primary school, Singapore students sit for their PSLE (Primary School Leaving Examination) and the final results they obtained are then used to "assess their suitability for secondary education" (Singapore Ministry of Education Statistics Digest, 2014, p. viii) and also serve as one of the main selection criteria for admission to the better secondary schools.

The GCE 'O' level (General Certificate of Education Ordinary Level) examination takes place at the end of four or five years of secondary school. GCE 'O' level results stream students into either two-year, pre-university colleges, the more prestigious avenue; three-year, diploma-level polytechnics, the next preferred alternative or finally, certificate-awarding ITE (Institute of Technical Education) where graduates can earn trade and vocational qualifications within one to two years of studies.

Finally, strong results from the GCE-A level (General Certificate of Education Advanced Level), the third and last of Singapore's national examinations, will open doors to one of the six local public universities for college and polytechnic graduates. Although the admission criteria to these universities largely favour college students with competitive GCE-A level results, about 30% of the polytechnic diploma graduates were given seats at these universities in 2015 (Teng, 2016a).

Private tuition & Confucianism.

These national examinations are not unique to the Lion City. Marginson (2011a) as well as Bray and Lykins (2012) see them as a larger cultural phenomenon and a key feature of the Confucian model of education that is also pervasive in other Asian countries such as Japan, China, Hong-Kong, Taiwan, South Korea, and Vietnam.

When compared to other nations, the public funds of Confucian societies are largely channeled towards the more advantaged (Marginson, 2011a) so for those aspiring to move out of the lower socio-economic strata, household-supported private tuition, another key feature of Confucian model of education, becomes a necessity.

Therefore, given that entry into the more reputable public tertiary education institutions is filtered by national examinations, another element of the Confucian model, it is hardly surprising that in Singapore where more than 75% of the population is of Chinese descent, many parents turn to external assistance to help their children cope with their studies and the three one-chance national examinations that lie along the path to the better and more prestigious public universities (Kenayathulla, 2013).

Singapore private tuition industry.

In the closing remarks of the private tuition phenomenon in Singapore, it is appropriate to provide an overview of the past and current state of the industry that supports it, both from the demand and the supply sides.

Private tuition consumers.

An Asian Development Bank report laments the lack of "carefully collected empirical data" (Bray & Lykins, 2012, p. 7) on the private tutoring phenomenon in Singapore, although its presence as much as its influence have both become increasingly significant over the last few decades (Kwan-Terry, 1991).

In Table 2.1 below, Bray (2007, p. 63) reports on the demand for private tuition in Singapore in 1992.

The data from Table 2.1 suggests that roughly a third of the combined population of Singapore's primary and secondary school students were receiving private tuition in 1992, although it seemed then to be more prevalent during primary school where almost half of the students admitted to taking supplementary tutoring sessions. Their secondary school counterparts, on the other hand, relied on private tuition in a proportion of 30% only.

Table 2.1

Ethnic Distribution of Private Tuition Prevalence in Singapore - 1992

		School Levels		Ethnic Groups		
	Total	Primary School	Secondary School	Chinese	Malay	Indian
% students receiving tutoring	32	49	30	32	25	43
% tutees taking						
English	72	84	49	72	95	52
Chinese	48	55	33	59	3	4
Malay	5	6	2	0	19	28
Tamil	1	2	1	0	0	14
Math	78	80	80	78	86	69
Science	48	52	48	47	65	35

Although interesting, these figures are a bit dated but fortunately, a more comprehensive 2012 report (Blackbox Research, 2012) surveying 955 Singaporeans indicated that 67% of Singaporeans parents had or had previously enrolled their children in private tuition and that half of them spent more than $500 per child on these supplementary lessons.

Another 2015 poll, conducted by Singapore's The Straits Times newspaper in collaboration with a local research firm, surveyed 500 parents and found that 80% of those with primary school children paid for private tuition and that more than 60% of parents with secondary school-going children did the same (Davie, 2015d). Interestingly, 40% of the parents surveyed send their

children to pre-school private tuition and even start the supplementary lessons *before* their offspring enter the formal education system.

The same 2015 poll reports that the median monthly amount spent on private tuition was SGD 155 for pre-school, SGD 205 for primary school, and SGD 260 for secondary school students (Davie, 2015d). A 2013 Department of Statistics household expenditure survey noted that monthly spending on private tuition was significantly lower for the lower income groups than for the higher ones (Blackbox Research, 2012; Department of Statistics Singapore, 2013).

One should however note that while not necessarily incompatible, these latest figures must be compared with the Department of Statistics findings of an 11,000 Singapore household survey that indicated that the Singapore's average household spending on tuition rose from SGD 54.70 a month in 1994 to SGD 79.90 in the latest 2014 survey (Department of Statistics Singapore, 2014; Tan, 2014a). Considering that the poll included the households that did not spend on private tuition, the average appears low when compared to empirical evidence gathered from the surveys conducted by newspapers sources.

Private tuition providers.

To meet the growing demand for private tuition among Singaporean parents, the private tuition industry in the Lion City has grown by leaps and bounds in the last 15 years.

Valued at SGD $470 million in 1998, the industry's earnings almost doubled to SGD 820 million in 2008 (Hassan & Shih, 2013) and since 2013, it reached the SGD 1.1 billion (Teng, 2016b; Department of Statistics Singapore, 2014; Tan, 2014a). Considering that the population of Singapore currently stands at around 5.5 million, the private tuition industry makes a small contribution to the domestic economy valued at SGD 410.3 billion in 2016 (Department of Statistics Singapore, 2017).

While the location where the private tuition is delivered may vary (the student's residence, the private tuition centre or, in rare instances, the tutor's own residence), the service relies on a single group of providers, the private tutors, individuals whose profile was found to be heterogeneous under different perspectives.

From a commitment perspective, parents can choose from a pool of part-time or full-time tutors. The full-timers tend to be more popular as their schedule is more flexible, they also tend to have more experience as well as a higher success rate in improving their tutees' school results. Furthermore, there is also a perception that if these individuals are willing to take the full-time private tutor route, they must be confident of their ability to deliver results and to earn as much, if not more as tutors than they would have if they had remained employed elsewhere.

From a qualification standpoint, private tutors may be recently retired or a full-time qualified teachers currently employed by the Ministry of Education (MOE) who offers private tuition in the subjects that they teach in school. These are, by far, the most sought-after tutors as being MOE-certified teachers, they are very familiar with the school curriculum, the subject matters and the performance expectations placed upon the students at various primary and secondary school levels. There are, however, many restrictions to the private tutoring activities of active full-time teachers.

Under the current Ministry of Education guidelines, Singapore teachers are allowed to deliver up to six hours of private tuition per week (Sreedharan, 2013), but they are not allowed to give paid tuition to students from their schools or work for tuition centres, and any tuition work should not affect or conflict with their responsibilities in school. These full-time teachers cannot use, for their private tuition, any of the resources and materials obtained from their school and neither are they allowed to provide private tuition sessions during school hours

(Singapore Ministry of Education, 2004). However, teachers are allowed to volunteer for part-time teaching in community self-help groups.

In practice, there are growing concerns in Singapore about the effectiveness of the measures put in place to enforce the monthly 24-hour tuition-giving limit and to monitor the possible and sometimes real conflict of interest that may arise between a teacher's full-time employment and his part-time, extra income-generating private tuition commitments.

Finally, part-time tutors can also be university faculty, recent under or postgraduate degree holders, as well as recent polytechnic diploma graduates looking to earn extra monthly income (Tutor City, 2015a).

Regardless of their qualification or time commitment, private tutors can elect to offer their services as freelancers, relying mostly on word-of-mouth to expand their clientele, or work exclusively through one or more private tuition centres where tutees are registered. Finally, they can also choose to provide their services through both channels i.e. as freelancers as well as through private tuition centres.

Private tuition delivery.

One-on-one tuition.

In Singapore, private tuition is dispensed either one-to-one at the residence of the tutee (home-based tuition) or to small groups of students gathered at tuition centres (group tuition). In some very rare instances, the tuition is conducted at the tutor's place of residence.

A 2015 survey found that the type of private tuition changes over the course of a Singapore child's schooling. During primary school, group tuitions are the preferred choice but when the child reaches secondary school, one-on-one tuition becomes the preferred approach (Lee, 2015a).

Tutor's residence.

The tutor's residence is the least common location for the delivery of private tuition but when it does happen, the popularity of the tutor has often a significant part to play. Empirical evidence indicates that the more effective tutors (those whose tutees' academic performance is perceived to have significantly improved thanks to his/her guidance) will find it more efficient to gather tutees at their residence instead of travelling to the students' individual home. Aside from saving travelling time and costs, the tutor can schedule more weekly private tuition sessions and, consequently, earn more money as well. Empirical evidence also suggests that private tutors with strong track records and an enthusiastic word-of-mouth support are often in a position to expect tutees to travel to their residence, instead of the other way around.

There is however a legal caveat to this option. The Singapore government restricts the activities of private tutors conducting lessons at their residence, be it a housing development board or a private apartment. In both instances, the private tutor can only conduct supplementary lessons for a maximum of 3 students at any given time (Urban Redevelopment Authority, 2015).

Home tuition

A 2015 survey indicates that in Singapore, only 34% of the primary school children who attend private tuition do so at their own home. Later on, however, the home-based tuition gains in popularity as 43% of children taking up private tuition do so at home during their secondary school education (Lee, 2015a).

There is a number of advantages to home tuition (Tutor City, 2015b). Firstly, the one-on-one attention ensures that the tutor can identify and help address the specific weaknesses of the child.

Secondly, during one-on-one home tuition, there is no peer pressure as, unlike group tuition sessions, the child's on-the-spot performance is not contrasted with that of other tutees.

Thirdly, home tuition saves the student a lot of travelling time and preserves the energy and concentration levels that children would need to sustain during the tuition lesson. Finally, home tuition provides a lot more scheduling flexibility than group tuition sessions.

The downsides should not, however, be ignored. For instance, in one-to-one, home tuition sessions, the pressure remains constantly on the child to continuously pay attention, do all the assignments, and answer all of the tutor's questions. Such intensity, combined to the nearby presence of one, if not both parents, might be excessive for the child who is already struggling academically.

Group tuition.

In Singapore, group tuitions are delivered either at private tuition centres or through self-help organisations.

Self-help / welfare organisations

The main self-help organisations that deliver private tuitions in Singapore are the CDAC - Chinese Development Assistance Council (CDAC, 2014), Yayasan Mendaki - Majlis Pendidikan Anak-anak Islam or Council for the Education of Muslim Children (Mendaki, 2014) and SINDA - Singapore Indian Development Association (SINDA, 2014). Their private tuition delivery methods follow that of the private tuition centres (Yang, 2015d).

Private tuition centres

In 2005, there were 417 tuition centres (Toh, 2008), 700 in 2012 and that number reached 850 in 2014 (Tan, 2014a). While a majority of these private tuition centres have one or two outlets at most, a small number has grown into chains with a financial profitability that is sufficiently significant to catch the attention of the local tax authority, the Income Revenue Authority of Singapore (Tan, 2014b).

These tuition centres not only vary in size but also in reputation. Large posters at the entrance of many of these centres highlight the success rates of their tutees and the extent to which their academic results have improved. The more successful ones even have a waiting list and will only admit students who are already doing very well in school so that the tuition centre's success rate can be more easily maintained (Koh, 2012).

Group tuitions at private tuition centres offer a number of benefits. Firstly, they are generally cheaper than home tuition as even after adding the profit margin that the centre keeps to cover its overheads, the tutor's hourly cost is split between the three-to-five tutees involved in the same session.

Secondly, the peer pressure that children attending home tuition session avoid may actually be an incentive as the individual child may likely try harder so as to keep up with the other tutees. In this context as in many others in Singapore, kiasuism might play a role.

Finally, private tuition centres generally have a wider access to and they are also able to produce a wider variety of original in-session assessments and assignments than individual tutors working as freelancers can deliver. On this latter point however, it is interesting to note that a parallel industry has grown in tandem with the private tuition industry in Singapore, one that sources and sells to the public at large, including private tutors, the assessments and assignments developed and used by the Republic's top public primary and secondary schools.

Tuition services offered.

Regardless of where the private tuition is delivered, the services offered are clearly aimed at meeting the needs expressed by the market, services that range from the legitimately expected to the ethically questionable.

Subject-specific tutoring

The legitimate services expected from a tutor are those of providing supplementary lessons to help students understand and improve their academic results in a number of academic subjects. Among the more sought-after supplementary lessons, one finds maths, languages, mainly English and Chinese, two of Singapore's main national official languages (Yang, 2015a; Bray, 2007), science (Bray & Kwo, 2013) and, for college students, the GCE 'A' level General Paper (GP) (Hassan & Shih, 2013).

Ad-hoc tutoring

A more recent trend has started to develop in the private tuition services industry in Singapore. Instead of committing to regular weekly private tuition sessions, parents have become more selective in order to manage the high costs of supplementary lessons as well as out of concern for the time constraints that their child faces when trying to juggle the demands of full-time schooling with those of multiple weekly private tuition sessions, each covering a different subject.

As a result, some parents have started to retain the services of a private tutor on an ad-hoc basis so that their children only get the help they needs to overcome difficulties they face in understanding or mastering specific topics of an academic subject (Yang, 2015c).

Other services

While most private tuition services provided are those with a clear and legitimate aim, others appear less so. For instance, some private tutors offer unofficial services that may raise a few eyebrows as they appear to be not only morally reprehensible but also counter-productive to the ultimate objective of improving the tutee's academic results.

Yet, these services stem from a demand expressed by some parents who have realised that their child can hardly cope with school assignments, co-curricular activities and multiple sessions of weekly private tuition. Hence, they seek the help of a part-time tutor to do some of their child's

homework and graded assignments, particularly (but not only) when the homework is considered to be superfluous or of little relevance to the school's academic subjects.

Paradoxically, a private tutor's help is not necessarily limited to doing a child's school homework but can also extend to doing the homework given by an elite tuition centre as well.

In Singapore, some private tuition centres are so successful that they have a somewhat long waiting list and to maintain their reputation, they can afford to turn away poor-performing tutees. As a result, some parents will seek the help of an external private tutor to do the homework given to their child by these elite tuition centres so that the latter can achieve high marks and not lose his seat at the private tuition centre (Koh, 2012).

This section of the literature review first defined the concept of private tuition and looked at other terms related to it. The benefits that parents generally seek when enrolling their child in private tuition were then analysed and complemented by a review of the factors promoting private tuition in the context of Singapore. The discussion that followed examined the current state of private tuition industry in the Republic, focusing on the consumers, the providers and the services offered to meet the demand for tutor-led instruction.

The following section will now review the existing body of research on self-directed learning, on the instruments that have been developed to measure it and on the nature of its relationships to other cultural, educational and work-related variables.

Self-Directed Learning

While some might attribute the adult learner's need for self-direction to the work of Knowles and its inclusion in the eight andragogy principles he developed, Knowles himself readily attributed to Cyril Houle the credit for encouraging further research in that direction (Knowles, 1975).

Origins of SDL.

In his book *The Inquiring Mind*, Houle (1961) reported the results of a qualitative study he conducted through a series of in-depth interviews with twenty-two adult learners. From his analysis, Houle developed a three-group classification of adult learners, according to their primary motivation to acquire knowledge: goal-oriented, activity-oriented and learning-oriented, the latter being described as autonomous learners seeking knowledge for its own sake, an early indication of the adult learner's desire for and interest in taking charge of his/her own learning.

Building upon Houle's work, Tough conducted an empirical study aimed at describing how adults naturally learn, without a teacher (Tough, 1967, 1971). After analysing the self-selected learning projects of sixty-six adult learners (only 30% of which were tied to an academic institution, the others being personal projects), Tough observed that while adults usually seek help at some point of their learning process, they prefer the assistance of helpers they approach themselves to the intervention and guidance of an instructor whose pedagogical training was often perceived as interfering with the learning sequence that the subjects would, otherwise, follow naturally. Besides highlighting an adult's inclination to assume responsibility for planning his self-selected or institution-imposed learning (projects), Tough's conclusion dovetailed coherently with Houle's earlier finding that certain learning-oriented adult learners were autonomous and naturally preferred to control and direct their own learning.

Definitions & conceptualizations of SDL.

Later, researchers turned their attention to the autonomy and control that adults sought in their learning, acknowledging, in the process, that the teacher-led, subject-centred instruction popular in primary and secondary schools had to give way, in the context of adult education, to a more self-directed and student-centred learning. However, as the interest in self-directed learning grew, so did the number of terms used to describe it. Hiemstra (1997) counted no less than 205

different terms describing the concept of SDL in the literature. That multiplicity created some confusion and challenges among researchers as SDL was given different designations in various studies: autodidaxy (Candy, 1991), self-planned learning (Tough, 1971), self-directed inquiry (Long & Ashford, 1976), self-initiated learning (Penland, 1979) and self-directed continuing learning (Oddi, 1984).

Besides generating different terms, self-directed learning also developed over the years a semantic duality stemming from two different but related conceptualizations. The first, process-focused perspective, links SDL to external factors. Tough (1971) saw SDL as self-planned learning and even proposed a number of steps that the adult learner should take in that process. Knowles (1975) also held a process-oriented perspective towards SDL that he defined as:

> a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes. (p. 18)

The process-oriented SDL conceptualization initially received most of the researchers' attention yet a second, personality-oriented perspective eventually emerged after some noted that, while the former perspective explained how self-direction occurred and was implemented in cross-sectional contexts, it clearly failed to examine the learning predispositions and experiences that some adults had as self-directed learners.

This second orientation, tied to an individual's set of personal characteristics, defines SDL as "a learner's desire or preference for assuming responsibility for learning" (Brockett & Hiemstra, 1991a, p. 24), a willingness and ability to lead one's own education (Candy, 1991), "a self-

motivated desire to pursue one's choice of knowledge […] a desire, a curiosity, an interest, a concern, a deficit, or even a wish" (Hsu & Shiue, 2005, p. 144).

Since this study seeks to assess, among other aims, the extent to which working adult Singaporeans have self-directed learning attributes, the latter, personality-oriented conceptualization of SDL is more relevant to the immediate purpose of this research and will henceforth be retained.

SDL and adult learners.

From the literature discussing adult learners and self-directed learning, three positions emerge. Some education theorists attribute to all learners, children and adults, an inclination towards self-direction (Elias, 1979; Guglielmino & Guglielmino, 2011). A second camp takes the position that while children may, in small measures, have SDL attributes and/or demonstrate related behaviours, SDL remains more closely associated with the defining characteristics of an adult learner (Knowles, 1980).

A third, more empirically-nuanced position, postulates that SDL does not define adult learners as they chronologically are but rather as, developmentally, they should be:

> There are many individuals who, chronologically, are adults but who show a marked disinclination to behave in anything approaching a self-directed manner in many areas of their lives. Self-directedness is rather being advanced as a prescriptively defining characteristic of adulthood. Hence, for an act of learning to be characteristically adult, it will have to exhibit some aspect of self-directedness. (Brookfield, 1984, p. 26)

Whether a chronological or a developmental outcome, SDL is crucial to adult learning as a significant portion of the latter either is, or needs to be self-directed. In that regard, Cross (1981) estimates that 70% of adult learning is self-directed, a percentage that interestingly matches

Tough's initial study (1971) where 70% of the self-planned projects the adults undertook were personal undertakings.

Affirming that self-direction characterizes adult learning as much as it helps define the adult learner is not, however, equivalent to stating that all adults are self-directed or that they all have developed self-directive traits to the same degree.

SDL and instructors.

In that regard, to help instructors adjust the nature of their intervention to the varying degrees of SDL characterizing the adult learners they supervise, Grow (1991) developed the Staged Self-Directed Learning (SSDL) model. Inspired from Hersey and Blanchard's situational leadership model created to help managers adapt their leadership style to the type of situation and degree of readiness of their subordinates (Hersey & Blanchard, 1977), Grow developed a similar model, matching not a leadership style to an employee's readiness but, rather, a teacher's preferred behaviour and instructional activities to the student's stage of learning self-direction. Table 2.2 illustrates the various teaching styles and learning activities that are suitable to each of the four self-directed learning stages Grow identified.

Although Grow provides typical student descriptions for each stage of SDL, his SSDL model was not designed as a rigorous diagnostic tool to assess at what self-learning direction stage a learner could be placed. Instead, the SSDL is meant to guide the instructor's approach to teaching students at one stage, with the deliberate purpose of preparing them to progress to the next, higher stage of self-direction.

Grow's model is particularly relevant to the scope of this study as it may first inform the stage of self-directed learning readiness of working adult Singaporeans as well as help determine whether the blended learning approach taken by the institution is correspondingly the appropriate one.

Table 2.2.

Grow's Staged Self-Directed Learning Model

Stages	Student	Teacher	Examples
1.	Dependent	Authority, coach	Coaching with immediate feedback. Drill. Informational lecture. Overcoming deficiencies and resistance.
2.	Interested	Motivator, guide	Inspiring lecture plus Guided discussions. Goal-setting and learning strategies.
3.	Involved	Facilitator	Discussion facilitated by teacher who participates as equal. Seminars. Group projects.
4.	Self-directed	Consultant, delegator	Internship. Dissertation. Individual work or Self-directed study group.

SDL and learning situations.

Opposed to Knowles' assumption that all adults want their learning to be self-directed, Grow argues that, regardless of their ability, adults may or may not be willing to be self-directed. Both Pratt (1988) and Candy (1991) concur and suggest that the practice of andragogy should also recognize that SDL aspirations and capabilities vary among adults, variations that can be largely explained not only by the characteristics and behaviours of the learner and the teacher but also by a third variable that may impact them: the learning situation.

In that regard, Pratt (1988) proposes a four-quadrant model combining three variables that describe the learning situation in terms of the degree of learner' dependency arising from either a need for support (evaluated in terms of motivation and confidence) or a need for direction (evaluated in terms of knowledge and skills required to make choices). The various permutations

of this pair of needs and their levels yield two andragogical and two pedagogical learner-teacher relationship situations (Figure 2.1).

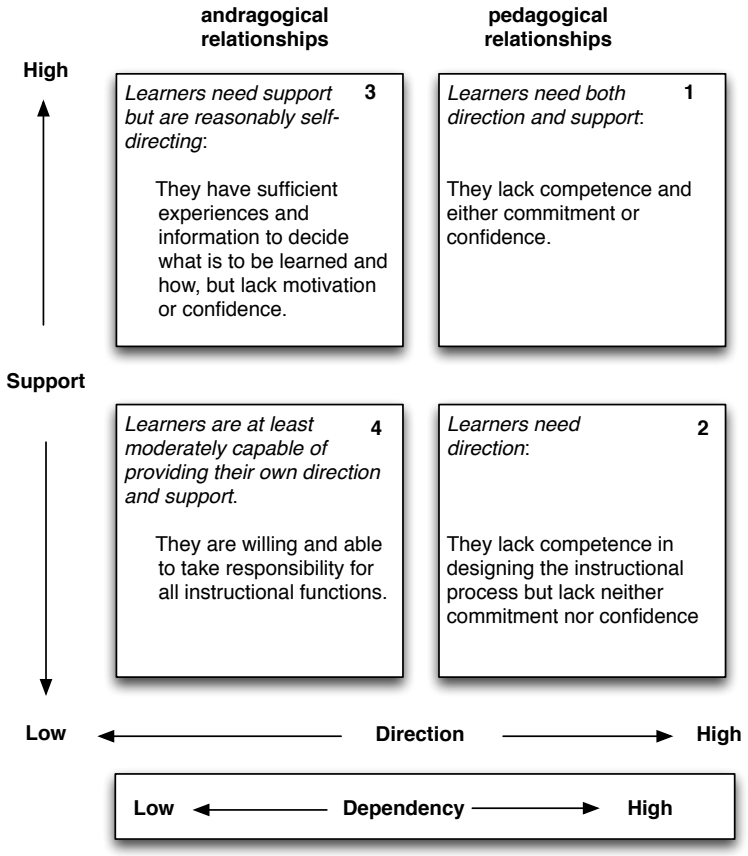

Figure 2.1. Learning Situations Based on Learner's Needs for Support & Direction. Adapted from "Andragogy as A Relational Construct" by D. Pratt, 1988, Adult Education Quarterly, 38, p. 167 and "Learning in adulthood: A comprehensive guide" (2nd ed.) by S. B. Merriam & R. S. Caffarella, 1999, p. 38.

The situational dimension that Pratt introduced to better reflect the reality of SDL and help instructors adapt their practice to the learning situation naturally leads to considering the impact that the learning delivery context, a different aspect of the learning situation, may have on a learner's self-direction.

On that point, Song and Hill (2007) partially fill a research void and suggest that an online learning context may impact on a learner's SDL because of the challenges faced in using

unfamiliar resources, the adjustments needed to learning strategies and the difficulties in maintaining a sufficient level of motivation in an environment where hiding, multi-tasking and procrastinating are generally easier undertakings than in face-to-face learning contexts.

This part of the review on SDL first discussed the origins and examined the two main conceptualizations of self-directed learning developed by researchers: the process-oriented perspective considers SDL to be externally driven and action-oriented while the second, personality-oriented perspective views SDL as intrinsic and the result of a confluence of personality characteristics and learning preferences. As that second conceptualization is the most relevant to the scope and purpose of this study, future references to SDL in this analysis should therefore be understood to indicate the personality-oriented perspective of that concept.

Subsequently, the discussion moved on to examining how certain education theorists consider SDL not as a deterministic quality but rather as a relative characteristic more or less present in adult learners. An adult learner's stage of self-direction (Grow's SSDL) (Grow, 1991) is partially influenced by the nature of the learning situation that, according to Pratt, is determined by a learner's level of dependency and his needs for support and direction.

Having discussed the main theoretical underpinnings of self-directed learning and examined the more salient research work covering them, this review will now turn its attention to the various instruments that have been developed to measure it before, in the concluding section, synthesizing the body of research that explored the relationships between self-directed learning and two education and work-related variables.

SDLR Measurements

Before reviewing and discussing the instruments measuring self-directed learning, a clarification needs to be made to avoid a terminological confusion between SDL and SDLR, a confusion that already exists as the titles of some scholarly work mention SDL as the measured

construct (Herbeson, 1991; Oliveira & Simões, 2006; Young, 1985) but the name of the instrument used Self-Directed Learning Readiness Scale implies that a somewhat narrower construct was being measured.

This minor confusion may stem from the multiplication of SDL definitions noted earlier as much as from the original work of Lucy Guglielmino who developed the Self-Directed Learning Readiness Scale, an instrument that she initially described as "… designed to indicate the individual level of development of several of the skills and attitudes most closely related to self-direction in learning" (Guglielmino, 1977, pp. 21-22), without including in that description the term readiness that otherwise appears in the instrument designation. Knowles (1984a) probably added to this confusion when he included readiness in his definition of self-directed learning: "a level of readiness and ability to respond to experiences by solving problems and applying knowledge" (Hsu & Shiue, 2005, p. 144).

For clarification purposes, it should therefore be understood that the instruments covered in this review are all self-evaluative tools that help determine whether an individual has the abilities and personality characteristics closely associated with self-directed learners (presence of SDLR abilities and personal characteristics) as well as evaluate the degree to which the individual has these defining characteristics (measure of SDLR). Hence, all of these instruments measure similar characteristics of self-directedness but one, the SDLRS, matches these results to an established scale that allows the researcher to draw some conclusions about the extent to which the individual is currently capable and willing (ready) to direct his own learning.

As a research undertaking, the measure of the self-directed learning construct dates back to 1973 and has since generated no less than 18 different instruments (Pilling-Cormick, 1995). Among the various tools designed to measure self-directed learning, Guglielmino's Self-Directed Learning Readiness Scale (SDLRS) is the first and, by a significant margin, the most popular

instrument that researchers have cited, scrutinized and used in the literature (Merriam & Caffarella, 1999).

Self-Directed Learning Readiness Scale.

Developed from a Delphi study conducted with 14 adult education experts, the SDLRS was derived from a 58-item[1] survey covering 8 factors that the latter considered essential to self-directed learning, namely: openness to learning opportunities, self-concept as an effective learner, initiative and independence in learning, informed acceptance of responsibility for one's own learning, love of learning, creativity, future orientation, and ability to use basic study and problem-solving skills.

Over the years, Guglielmino created three versions of the scale, one designed for the general population (SDLRS-A), another tailored to non-native English speakers and adults with low reading skill levels (SDLRS-ABE) and a final one designed to assess the self-directed learning readiness of elementary school children (SDLRS-E). Interestingly, and regardless of the version used, the self-assessment survey form that the respondents fill in, either online or on paper, is entitled *Learning Preference Assessment* (LPA) so as to avoid response biases and ensure that the scale name does not influence the subjects' self-ratings.

A number of researchers studied, tested and confirmed the reliability (Long, 1987; McCune, Guglielmino, & Garcia, 1990; Morris, 1997; Wiley, 1983) as well as the content, criterion, and construct validity of SDLRS as an appropriate measure of self-directed learning readiness (Brockett, 1985; Brookfield, 1984; Long & Agyekum, 1983; Merriam, Caffarella, & Baumgartner, 2007). On the other hand, others expressed reservations about its general validity, notably Field

1 The initial survey counted only 41 items but through later refinements, 17 additional items were included in the scale.

(1989, 1990), Candy (1991) and Bonham (1991), but these objections were, in the first instance at least, partially addressed in targeted responses (Guglielmino, 1989; Long, 1989a; Long, 1989b; McCune, 1989).

Other researchers discovered some limitations in the application of SDLRS to certain education fields or populations such as students under the age of 20 (Delahaye & Smith, 1995), medical students (Hoban, Lawson, Mazmanian, Best, & Seibel, 2005) or nursing students (Crook, 1985), prompting in the latter case, the development of the nursing-specific Self-Directed Learning Rating Scale for Nursing Education (SDLRS- NE) (Fisher, King, & Tague, 2001).

Despite these reservations and limitations, SDLRS remains, to this day, the most widely used instrument to measure self-directed learning readiness (Delahaye & Choy, 2000; McCune, 1988; McGivney, 2009). Such is the impact of Guglielmino's pioneering work that some of the other self-directed learning readiness assessment tools subsequently developed are modified, extended or customized versions of the SDLRS. Among them, one finds the 4-factor, 38-items SDLRS for medical students (Hendry & Ginns, 2009), the earlier-mentioned SDLRS-NE targeting nursing students and a third one developed for Japanese nursing students (Matsuura et al., 2003).

While these last instruments were found to be useful in more specific domains, they have not generated as much interest as the Oddi Continuing Learning Inventory (OCLI), the second leading SDL assessment instrument according to Straka (1996) as well as Harvey, Rothman, and Frecker (2003, 2006).

Oddi Continuing Learning Inventory (OCLI).

Like Guglielmino's SDLRS, OCLI is the direct outcome of a doctoral research work (Oddi, 1984; Oddi, 1986) that led to the creation of a 24-item self-directed learning readiness scale covering three dimensions of an adult learner's personal characteristics: proactive/reactive learning drive, cognitive openness/defensiveness, and commitment/apathy or aversion to learning.

Unlike SDLRS that targets SDL readiness, OCLI measures self-directed *continuing* learning, a construct that its author differentiated from the broader concept of self-directed learning by focusing on the personality characteristics of individual learners who, through various learning modes, demonstrate both initiative and persistence in learning over time. In that respect, OCLI represents a specialized tool aimed at assessing an individual's natural or acquired lifelong self-directed learning disposition that serves a distinct and possibly complementary purpose to the SDLRS.

That distinction notwithstanding, OCLI shares a number of items with the SDLRS and, although not as frequently mentioned in the literature as the latter, it is a robust SDL instrument whose reliability and validity have been confirmed by a number of later studies (Harvey et al., 2006; Oddi, 1986; Oddi, Ellis, & Roberson, 1990; Six, 1989; Straka, 1996).

Other Self-directed Learning Assessment Tools.

In recent years, the interest of the education research community towards self-directed learning assessment has witnessed a resurgence, as evidenced by the development of other instruments that will not be reviewed here as their reliability and validity have yet to be clearly established. Among them, the Self-Directed Learning with Technology Scale (SDLTS) (Teo et al., 2010), the Self-Rating Scale of Self-Directed Learning (SRSSDL) (Williamson, 2007) and the Personal Responsibility Orientation Self-directed Learning Scale (PRO-SDLS) (Stockdale, 2003).

In the last forty years, self-directed learning has also gained credence beyond the confines of education research and as a result, both existing and new SDL assessment tools have been used to meet the needs of the workplace. For instance, Guglielmino's SDLRS has been employed in various studies and correlation analyses in the manufacturing sector (Beitler, 2001; R. E. Durr, 1992, 1995) (Beitler, 2001; Durr, 1992, 1995) in corporate training and human resource

development (Guglielmino & Guglielmino, 1994, 2003; Guglielmino & Murdick, 1997) as well as in work performance (Guglielmino, Guglielmino, & Choy, 2001).

To address the distinct reality of organizations, Bartlett and Kotrlik (1999) developed a 49-item SDL assessment tool, the Bartlett-Kotrlik Inventory of Self-Learning (BISL). Unlike SDLRS and OCLI, BISL was initially designed to measure self-directed learning in an organizational (i.e. workplace) setting instead of an educational context. A priori, this instrument appears to be more comprehensive than SDLRS or OCLI as it covers 11 factors that not only incorporate personal variables similar to those identified by Guglielmino and Oddi but that also include social (interactions between individuals) and environmental variables (work environment) (Chou & Chen, 2008).

Having delimited and discussed the theoretical frameworks and concepts relevant to adult learning and self-directed learning and then examined some of the tools that were developed to measure the SDL, this review will now examine the past literature more closely relevant to the topic of this study: the relationship between SDLR and selected work and education-related variables.

SDLR and Other Variables

Guglielmino and Oddi's seminal work on the development of self-directed learning measuring instruments has provided researchers and doctoral students with many opportunities to explore the relationship between an individual's level of learning self-direction and a very wide variety of demographic, psychosocial and other constructs and variables, leading to a substantial body of research work. For instance, Guglielmino indicates that to date, more than 150 doctoral dissertations relied on her SDLRS and the number of published studies using SDLRS exceeds 300 (Guglielmino & Guglielmino, 2017).

To maintain the focus on the aims of the study, this review will be restricted to prior studies that used the SDLRS to explore the relationship between SDLR and selected prior education as well as work-related variables in different cultural environments.

SDLR and cultural variables.

Any study exploring cultural elements related to performance, be it academic or related to work, sport or most other domains of human activity, must be carefully designed to respect the directives and mandate granted by the ethics committee that approved it. These ethical concerns are legitimate but the caution that the scholars exercise in respecting them may explain why the research studies currently available generally focus on national culture and were designed to yield findings that are only timidly comparative on certain cultural dimensions such as race and ethnicity.

In a study exploring the relationship between contract learning, SDLR and the learning preferences of Taiwanese undergraduate students, Chang (1990) found that the subjects indicated a lower level of self-directed learning readiness than the average American adults, that they had a strong preference for concrete over abstract learning and that there was a statistically significant relationship between the students' SDLRS scores and their preference for student-structured learning.

In a later study, Hsu and Shiue (2005) concluded that Taiwanese students had slightly lower SDLRS mean scores than their American counterpart and explained that the difference could be explained by culturally-bound psychological and learning attitudes factors as well as national education policies. Specifically, the authors suggested that, traditionally, Taiwanese teachers assume most of the responsibility for their students' learning activities, an expectation that transcends all levels of the educational system. In such a climate, the students' role is that of passive learners who wait for and expect a very close teacher-led guidance. Furthermore, as academic assessment values rote learning in Taiwan, students have developed memorization-

centred learning strategies and have therefore little if any incentives to develop self-directed learning skills.

Both Hsu and Shiue (2005) and Chang (1990) studies confirmed Adenuga's earlier findings (1991) that American students were more prepared for self-direction than their counterparts in emerging and developing countries. At the same time, Turner (2007) and Klotz (2011) lament that the American culture does not always nurture the abilities that their students need to acquire self-directed learning skills and the latter usually enter college expecting the instructors to closely guide them by clearly stating what needs to be learned and how to learn it.

SDLR and educational background.

The influence that an individual's earlier education has on his inclination towards self-directed learning is clearly highlighted by Candy (1991) who wrote that "adults are powerfully affected by aspects of their backgrounds - including family and prior education - in ways that limit and *constrain their ability to be self-directing in certain learning situations*" (p. 311) *[Italics added for emphasis]*.

Prior research on the relationship between SDLR and education-related variables is extensive. Its coverage is particularly significant on the correlations between SDLR and learners characteristics such as the learners' psychological and personality types (Johnson, Sample, & Jones, 1988; Kirwan, Lounsbury, & Gibson, 2010; Kitson, Lekan, & Guglielmino, 1995; Wilson, 1993), the learners' traits such as curiosity (Barnes, 1999; Reio, 2004), creativity (Cox, 2002; Torrance & Mourad, 1978) and critical thinking (Reio & Leitsch, 2003) as well as learning styles (Carney, 1985; El-Gilany & El Sayed Abusaad, 2013; O'Kell, 1988).

Of more immediate relevance to the focus of this study, however, is a review of the existing body of knowledge on the relationship between prior educational experience and SDLR and, on that account, the literature is rather sparse and largely inconclusive.

Studying the possible covariance between the education level and the self-directed learning readiness of 96 adults enrolled either in diploma programmes at a community college, in undergraduate or graduate studies at a university, Herbeson (1991) noted that although SLDRS scores did show an upward trend between diploma students and undergraduate students, that increase was not statistically significant.

In another research on self-directed learning readiness among 60 to 80-year old senior citizens attending classes at a US university, Adams (1992) found no statistically significant relationship between their SDLRS score and their prior level of educational attainment.

On the other hand, in an earlier study examining the links between self-directed learning readiness and work performance at a large American utility company, Guglielmino, Guglielmino, & Long (1987a) found that employees' SDLRS scores tended to increase with the level of their educational qualifications.

Besides these earlier analyses on the possible relationship between prior educational attainment and SDLR, no other study seems to have been conducted on the covariance between prior educational experience and self-directed learning readiness, a research gap that clearly needs to be addressed.

On that point, Clardy (2000) concludes that the learning history of individuals may represent a good indicator of their propensity to engage in self-directed learning activities. On the other hand, Long and Agyekum (1983) note that the nature of the learners' prior educational experience might represent an obstacle to the development of their self-directed learning readiness.

On that account, Long (2003) suggests:

> Before introducing trainees and students to self-directed learning in any kind of formal learning situations (including e-learning schemes), it appears important to be aware of some of the obstacles that learners face. Three important barriers to acceptance of

> personal responsibility in learning are as follows: (1*) the learners' previous formal training and instruction have provided limited opportunity for learner responsibility in those settings;* (2) past experiences with self-direction in formal settings have been negative; and (3) failure to relate learning goals to learners' personal interests. (p. 5) *[Italics added for emphasis]*

The first of the barriers mentioned by Long is particularly relevant to the reality of Singapore's teaching and learning contexts where, at primary and secondary school levels, both the formal, public education system and the informal, complementary education provided by the private tuition sector are highly instructor-centric and leave little opportunities for the students to assume more responsibility for their own learning. In that regard, Toh and So (2011) note that although an ICT infrastructure exists to promote self-directed learning in Singapore, teaching practices have simply not followed suit, "especially in terms of anchoring learner-centred practices which foster collaborative and self-directed learning" (p. 355). A study of the influence that a prior exposure to tutor-centric instruction might have on the self-directed learning readiness of Singapore-educated working adults is therefore both timely and useful.

SDLR and organisational level.

From a review of the literature, it seems clear that self-directed learning plays a significant role in organisations. In that regard, Long (2003) mentions that most of the learning that employees acquire in organizational settings occurs outside of formal training or instructional structures. He adds that 80 percent of adults in a working environment expect to have or have experienced autonomous and trainer-free learning experiences and that most of their learning occurs as a result of their learning self-direction. The impact of self-directed learning is also felt at all organizational levels.

At the non-managerial level, Clardy (2000) examined various types of vocationally-oriented self-directed learning projects (VO-SDLPs) that 56 rank-and-file staff from 5 different organisations undertook in the workplace. He found that these employees would undertake VO-SDLPs either because their job performance specifically required it (induced VO-SDLPs), because employees felt a need to initiate them to achieve personal goals or support their work performance, but without any pressure or incentive from the work environment (voluntary VO-SDLPs) or because the employees felt personally motivated to initiate it by a spark from the workplace (synergistic VO-SDLPs).

At the managerial level, only one study (Guglielmino, Guglielmino & Long, 1987) examined the possible correlation between organisational levels and the SDLR scores of 753 respondents working at a large utility company. The study found no statistically significant differences between the SDLRS scores of non-managers and those of first and second-level managers. As for the top two managerial levels, the findings were largely inconclusive as the number of respondents in these two groups was too small to yield statistically-valid results. However, the researchers found a positive relationship between SDLRS scores and educational level attained by the respondents in this study.

In a later research, (Durr, Guglielmino & Guglielmino, 1996) studied the relationship between SDLRS scores and 9 occupational categories, split between 5 non-managerial and 4 managerial positions held by 600 respondents working at Motorola, a major US-based electronics company.

At the conclusion of their research, they found that, for non-managerial positions, clerical and manufacturing/factory jobholders had the lowest SDLRS scores compared to engineering and support positions. On the other hand, while there were score variations between managerial-level positions, the SDLRS score differences were significantly narrower than those differentiating non-

managerial occupations. Overall, Durr, Guglielmino & Guglielmino (1996) also concluded that generally, managers did have higher SDLRS scores than non-managers but, interestingly, they also noted that while the mean SDLRS scores increased with the respondents' level of education qualification achieved in each occupational category, the SDLRS scores of non-managerial as well as that of managerial staff working in sales were higher than the other groups, even though the percentage of those holding a degree-level qualification was relatively low.

Kops (1997) conducted a series of semi-structured interviews of 32 mid-level managers from two financial institutions and two insurance companies based in Canada. The themes that arose from the qualitative research findings yielded some important points, namely that mid-level managers were focusing their learning efforts towards acquiring either management skills, technical skills or general knowledge to keep pace with their ever-changing job requirements. Interestingly, the mid-level managers indicated that they tended to be more learning self-directed when acquiring management or technical-related skills and knowledge. Furthermore, about 75% of them indicated that self-directed learning was person-related, not job-mandated, although many recognized that some of their job-related learning needs could not be met by formal training programmes offered by the organization that employed them.

Overall, a review of the literature could only unearth one study (Guglielmino, Guglielmino & Long, 1987b) that specifically examined the relationship between SDLR and organisational levels. Unfortunately, its conclusions are of very limited application beyond the organisational context of the single company where the research was conducted. Furthermore, the significance of the results is severely limited by sampling size issues affecting the higher management levels.

Concluding Remarks

This study aims to examine, for working adult Singaporeans, the relationship between self-directed learning readiness and two separate variables: their prior exposure to private tuition and the organisational level that they have achieved at work.

From the literature reviewed, it is clear that prior research relating to these two relationships is rather sparse and largely inconclusive. As such, the study represents an exciting opportunity to expand the current body of knowledge on SDLR and to explore, for a different population (Singapore) and sample (working adults) drawn from three races (Singaporean Chinese, Malays and Indians) whether a correlation can be established between SDLR, organisational level and prior exposure to private tuition.

Chapter III: THEORETICAL FRAMEWORK

To delimit the scope of the study and justify the various research design decisions made subsequently, it is important to answer a number of questions directly relevant to the methodology that the research will adopt. In that pursuit, this section will first situate the institutional context of the research. It will then provide an exposé of the ontological and epistemological positions that define the researcher's worldview as well as describe the assumptions made about the nature of reality and knowledge. A review of the research questions and a discussion of the research method will then ensue, providing details about the sampling method, participants, data collection instruments and procedure that the study will follow and, finally, the limitations that will result from these assumptions, decisions, and choices. Whenever relevant, the rationale behind the research design choices will also be provided, choices that were primarily dictated by the questions that the study aims to address but also, and as importantly, by a concern to reduce the possibility of alternative explanations to the conclusions that this research will reach.

Institutional Context

Institutional Overview.

The research was conducted at a Singapore-based, private, not-for-profit academic institution founded in 2005 at the behest of the Singapore government that, at its inception, gave it the mission to provide opportunities for professionals and adult learners to upgrade their qualifications, knowledge, and skills through a wide range of relevant programmes.

The participating institution comprises five schools: law, business, arts and social sciences, human development and social services, and finally, science and technology. As of June 2014, prior to data collection, there were more than 13,000 students enrolled in one of the 50 undergraduate and postgraduate degree programmes offered by the institution.

Institutional Blended Learning Environment.

Students at the participating institution earn an undergraduate degree in a given discipline after successfully completing 130 credit units from the relevant program curriculum structured along 5 and 10 credit unit courses. There are two semesters in a year and most courses used to be offered every semester through 6 sessions that are delivered either entirely face-to-face or in varying degrees of hybrid/blended learning mode. These variations have gradually disappeared however as the participating institution moved towards its own brand of blended learning, one where each course is delivered through 3 face-to-face, classroom-based, seminar sessions and 6 asynchronous, online sessions.

As discussed earlier, Garrison and Vaughan (2008) summarise in the following terms the predominant definition of blended learning:

> Recognizing true blended learning is not obvious. Blended learning is the thoughtful fusion of face-to-face and online learning experiences. The basic principle is that face-to-face oral communication and online written communication are optimally integrated such that the strengths of each are blended into a unique learning experience congruent with the context and intended educational purpose. (p. 5)

The participating institution has restructured its course delivery with the same purposes that Garrison proposed to optimize blended learning, namely that online and face-to-face learning should be thoughtfully integrated into a coherent course design that optimizes the student engagement through a restructure and replacement of traditional class contact time (Garrison & Vaughan, 2008). A brief review of the evolution of the teaching and learning model at SRU will help highlight this last point.

At the inception of the participating institution in 2005, courses were delivered through 6 classroom-based, three-hour, face-to-face sessions. According to Allen and Seaman's qualitative

course typology (Allen & Seaman, 2016), these were essentially web-facilitated courses with no online teaching component but where the online IT infrastructure was exclusively used as a repository for downloadable course material and assignment submissions.

In 2010 however, the university started a course delivery transition towards a blended learning model of 3 face-to-face sessions combined with 3 asynchronous online sessions.

However, instead of simply keeping 3 sessions as classroom-based, one-way lecture cum two-way tutorial sessions and moving 3 other sessions online, the four Schools at the participating institution decided to convert all 6 classroom-based, three-hour face-to-face sessions of each course into 6 asynchronous online chunked lectures that students can view at their own time and pace. These 6 sessions are then complemented by 3 other face-to-face, classroom-based, instructor-facilitated seminars. Table 3.1 below provides an overview of this blended delivery model followed by the school of business of the institution.

Following Garrison's plea that blended learning should not simply be a partial conversion to online delivery of face-to-face teaching, the new blended course delivery model that the university implemented sought to thoughtfully fuse "face-to-face oral communication and online written communication" (Garrison & Vaughan, 2008, p. 5) with the aim of meeting the special learning needs of working adults and enhance their learning experience. This was reflected in the new mission statement of the institution to create excellence in lifelong education through a uniquely-designed learning experience, equipping learners for a better future.

Table 3.1

The Participating Institution's Blended Course Delivery Model

Sessions	Course Content	Online, One-Way Delivery	Self-Study	Face-to-Face Seminars	Descriptions
Session 1	Study Unit 1	Chunked Lecture 1	Yes	No	Seminar 1 is mostly student-led learning, except for viewing chunked lecture 1.
Session 1	Study Unit 2	Chunked Lecture 2	Yes	Yes	Seminar 2 is a student-centered teaching that involves case study discussions and analyses and other instructor-facilitated learning activities covering content from study units 1 and 2.
Session 1	Study Unit 3	Chunked Lecture 3	Yes	No	Seminar 3 is mostly student-led learning, except for viewing chunked lecture 3.
Session 1	Study Unit 4	Chunked Lecture 4	Yes	Yes	Seminar 4 is a student-centered teaching that involves case study discussions and analyses and other instructor-facilitated learning activities covering content from study units 3 and 4.
Session 5	Study Unit 5	Chunked Lecture 5	Yes	No	Seminar 5 is mostly student-led learning, except for viewing chunked lecture 5.
Session 6	Study Unit 6	Chunked Lecture 6	Yes	Yes	Seminar 6 is a student-centered teaching that involves case study discussions and analyses and other instructor-facilitated learning activities covering content from study units 5 and 6.

The next sections first provide details pertaining to the researcher's ontological and epistemological positions as outline in his worldview. They then describe the research methodology, starting with the questions that the study aims to answer, followed by a brief review of the method, population and sample, data collection instruments and procedures that this research followed.

Researcher's Worldview

Any rigorous research undertaking should rely on an explicit research paradigm, a set of philosophical assumptions, thinking and related practices that the researcher expresses through interlinked ontological, epistemological and methodological decisions (Grix, 2002; Terre Blanche & Durrheim, 1999). When these positions are articulated into a coherent paradigm, the research study is not only better delimited but it is likely to be structurally and philosophically stronger as well. Besides providing a better scope and a more logical approach to a study, a clear and coherent research paradigm may also help respond to certain criticism and explain, for instance, that if a research study did not address certain aspects or issues of a social phenomenon, it could simply be that the ontological and epistemological positions declared at the onset did not allow for it (Grix, 2002).

While the importance of a coherent research paradigm is generally recognized, a disconcerting degree of confusion persists in the literature, not only about the paradigm concept itself – Masterman (1970) notes for instance that Khun (1962) used the term in more than twenty different ways in his seminal book on the structure of scientific revolutions – but that confusion also extends to many other terms used to discuss research philosophies in social science. On that point, Grix (2002) laments that:

> The important terms ontology and epistemology, for example, are often shrouded in mystery, partly created by the language with which they are explained, leaving the reader

> more confused than they were before they began reading. […] The lack of clarity and constancy of the social science lexicon has led to a minefield of misused, abused and misunderstood terms and phrases with which students must contend. (pp. 176-177)

The proposed study will not engage further in this debate as this would largely fall beyond its scope. However, to present a logical discourse of its research philosophy and methodological approach, this part of the study will essentially if not exclusively be based on philosophical discussions and research studies that share identical or compatible lexicons pertaining to the concepts of paradigm, ontology, epistemology, and methodology.

Unfortunately, resolving issues of conflicting terminologies is not the only roadblock to overcome: a brief review of the literature on research traditions also suggests that authors do not uniformly agree on the nature of the links between ontology, epistemology, and methodology. For instance, some theorists see between them a single, unidirectional, and linear relationship (Grix, 2002) while others prefer a model connecting pairs of the same three paradigmatic elements through multiple, bidirectional links (Creswell, 2009).

As either model has shortcomings yet each can logically be supported, a choice had to be made between them. Because of the clarity and simplicity of its design, Grix' unidirectional model (Grix, 2002, p. 180) linking ontology, epistemology, and methodology to the remaining building blocks of a sound research design will be retained (Figure 3.1). In that model, the coherence of a research framework starts with a presentation of the researcher's ontological perspective that, once articulated, will systematically guide the subsequent epistemological position, methodological, and other design choices that will be made.

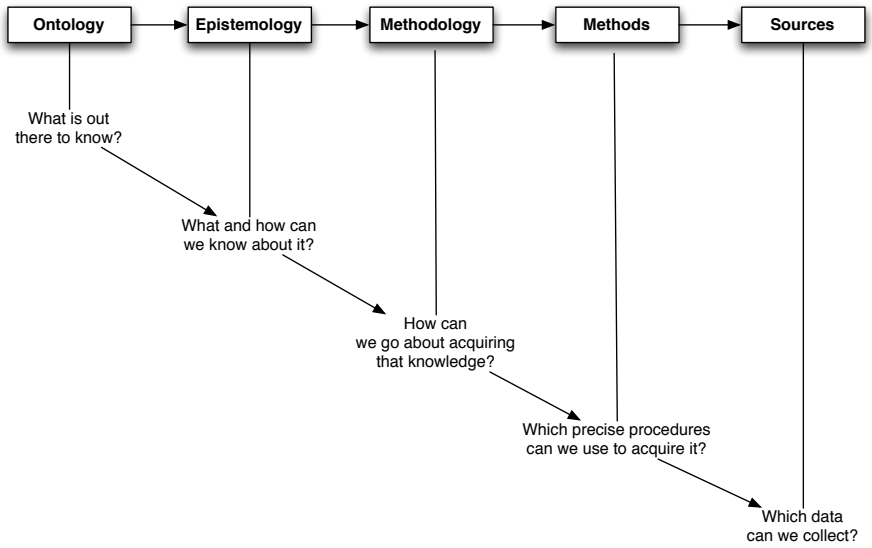

Figure 3.1 Sequence of Philosophical Positions and Ensuing Decisions in Research. The interrelationship between the building blocks of research. From: Grix, J. (2002). Introducing students to the generic terminology of social research. Politics, 22(3), p. 180.

Figure 3.2, below, provides a more detailed view of the same process as described by Saunders, Lewis, and Thornhill (2009, p. 108). Once researchers have explicitly declared their ontological position, the model helps the researcher identify, for each subsequent research building block, the compatible options that can be selected to ensure that the various elements of the proposed study paradigm are coherently aligned.

The following section will now discuss the ontological, epistemological, and methodological positions that this researcher is assuming but to fully apprehend the logic of the arguments put forward, the reader is encouraged to refer to the two models presented in Figures 3.1 and 3.2 while reading this exposé.

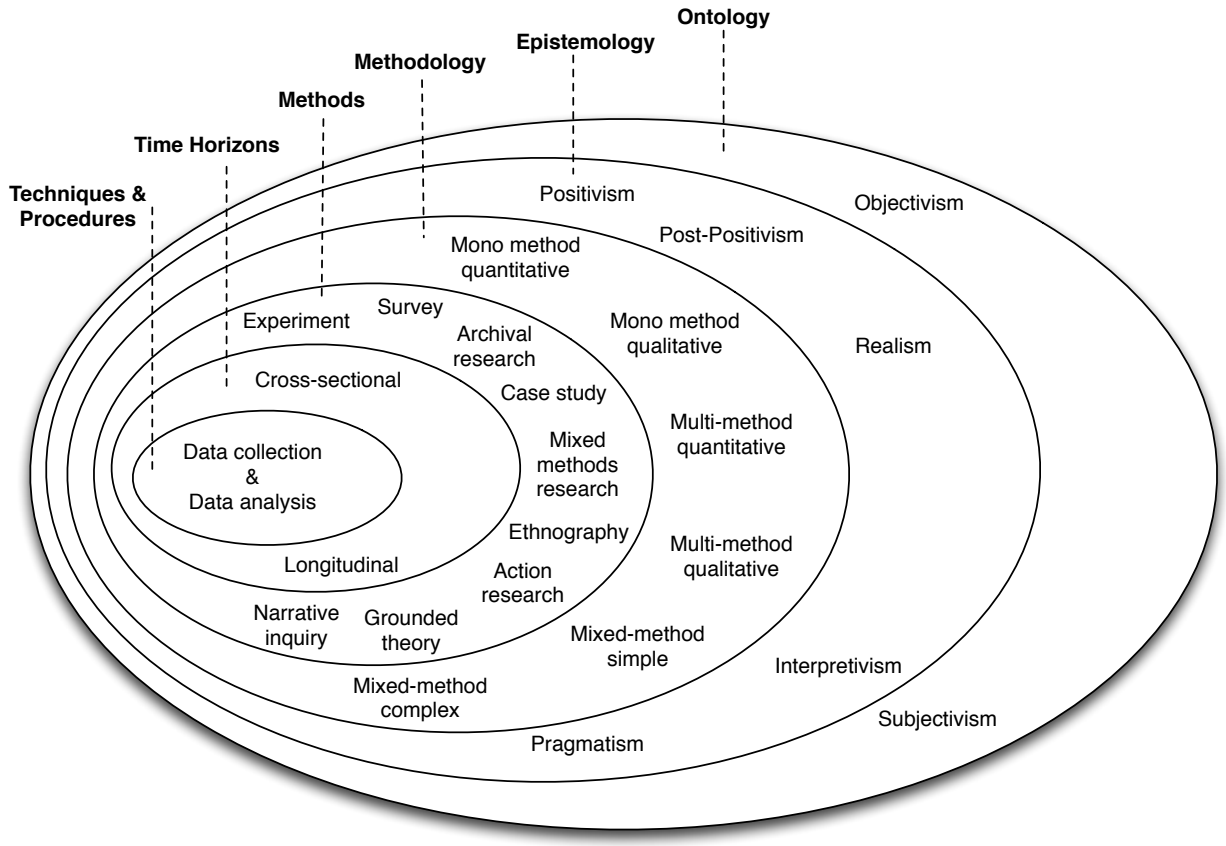

Figure 3.2 Sample Alternatives of Various Research Philosophies Positions and Ensuing Decisions. Research Philosophies and Approaches – From Ontology to Data Collection and Analysis Techniques and Procedures. Adapted from Saunders, M., Lewis, P., & Thornhill, A. (2009). Research methods for business students. Harlow, England: Prentice Hall, p. 108.

Ontological Position.

Ontology, "the starting point of all research" (Grix, 2002, p. 177), the first element and cornerstone of a sound research paradigm, represents a researcher's view and a set of beliefs about the nature of the social reality being investigated and the assumptions consequently made as a result of that declared perspective.

There are a number of ontological philosophies in the literature but more prominent among them, one finds objectivism and subjectivism (Saunders et al., 2009; Grix, 2002).

Ontologically, a researcher who takes an objectivistic perspective of reality would argue that reality exists independently of the social actors living in and interacting with it. Conversely, researchers who adopt a subjectivist perspective would conceive reality not as an independent entity but rather as the result of the perceptions and consequent actions of social actors (Saunders et al., 2009).

In subjectivism, a term often associated with constructionism (Saunders et al., 2009), reality cannot be defined precisely as it is the product of the perceptions and biases of the social actors. Hence, as they each develop their own and unique perception and set of biases towards it, reality cannot be absolute because it is constantly evolving and takes as many forms as there are social actors perceiving and constructing it.

On the other hand, the objectivistic ontological position suggests that reality can be absolute because it exists on its own, regardless and despite the varied perceptions and biases of the social actors living in it. The latter may have biased perceptions of reality but, in itself, that does not change the nature of reality that exists in itself, independently of such biases. For that reason, reality can be fully defined and discovered through scientific observation and experimentation, both assumed to be free from the interpretation and biases of the perceptual lenses of the researcher.

The purpose and research questions of the proposed study assume a clear separation between the observed phenomenon (reality) and the researcher/observer, specifically that the reality being observed (self-directed learning and its correlational relationship to other variables) exists as is and is not filtered, interpreted or otherwise mediated by the observers and participants. As such, for this researcher, an objectivistic perspective is the most logical and coherent ontological position that should be adopted for the proposed study.

Epistemological Position.

Saunders et al. (2009) explain that epistemology is concerned with "what constitutes acceptable knowledge in a field of study" (p.112). The main epistemological positions that a researcher may adopt are: realism, interpretivism, pragmatism, positivism and post-positivism. As the first three partially stem from a subjectivistic ontological perspective that has been excluded earlier, the discussion will therefore focus on the last two, following, as illustrated in Figure 3.2, the available options remaining after taking an objectivistic ontological position.

Positivism postulates that the social world can be studied in a manner similar to the approach taken when researching the natural world (Mackenzie & Knipe, 2006) and that the findings of such research can be expressed as cause-to-effect or associative relationships or in absolute, law-like generalisations similar to those normally reserved to physical and natural scientists (Saunders et al., 2009).

To the conception of one, absolute and scientifically observable truth that it shares with positivism, the post-positivist philosophical position added a distinctive nuance: that research-based evidence is fallible and can never completely nor perfectly cover the absolute truth of that unique reality (Creswell, 2009). Yet, even if post-positivists consider impossible the attainment of such an objective, they see research as a worthwhile undertaking nonetheless, mainly as the unending pursuit of an ideal, an on-going but fruitful process where past theories are verified, rejected or refined by later research (Creswell, 2009). The proposed study has that very aim: to lead to a more comprehensive understanding of self-directed learning in an unexplored socio-cultural context as well as add to and possibly refine the current body of knowledge of that particular aspect of reality.

Hence, depending on its scope and aims, a research on self-directed learning readiness (SDLR) can be approached from a variety of ontological and epistemological angles. For instance,

on the one hand, a researcher could elect to study SDLR as a social phenomenon and seek to identify and further explore the inner feelings and opinions that adults have towards assuming a better control over their learning experience as much as towards making decisions about its process. In such a context, SDLR should be studied from a subjectivist and interpretivist perspectives as the SDLR reality is being defined, explored and constructed or interpreted from the point of view of those who experience it, specifically from the adults who either want or are expected to be more involved in their own learning.

On the other hand, however, and that it is the perspective taken in this research, SDLR can instead be studied as an objective construct that can be explored quantitatively, using rigorous scientific methods and measuring instruments that are free from the influence, opinion and values of the researcher or from those of the research participants. Hence, in the conceptualization and development of the research questions that the study will aim to answer, the researcher has adopted an objectivistic and a post-positivist perspective that will serve to guide the rest of the methodological and other decisions that will be made prior to as well as during the conduct of the study.

Research Questions

The study will be a cross-sectional quantitative analysis that will first measure the level of self-directed learning readiness among working adult Singaporeans and then examine possible correlations with two education and work-related variables, as determined by the following research questions:

Q. 1 What is the extent of self-directed learning readiness among working adult Singaporean learners?

Q. 2 Is there a statistically significant relationship, among working adult Singaporean learners, between their prior exposure to private tuition and their self-directed learning readiness?

Q. 3 Is there a statistically significant relationship, among working adult Singaporean learners, between the organisational level they achieved at work and their self-directed learning readiness?

Research Method

Creswell (2012) explains that researchers should choose a correlational research design when they seek to examine the "degree of association (or relationship) between two variables" (p. 338). As this is the very purpose of all but the first of the above research questions, the study will therefore use correlational research in its investigation of questions 2 and 3. Such a research design choice has been widely used by a number of prior studies evaluating, in other contexts, the relationship between SDLR and other variables such as academic performance (Carson, 2012; Hsu & Shiue, 2005), age and gender (Reio & Davis, 2005), as well as ethnicity (Diaz, 1988).

The survey method was used to collect the research data. The first part of the survey used the pre-designed learning preference assessment (LPA) questionnaire developed by Dr. Lucy Guglielmino to gather data about the degree of self-directed learning readiness of the research participants. The second part of the survey was used for the collection of socio-demographic, education and work-related data (Appendix A). Although other SDLR measuring instruments exist, the LPA was retained, not for its popularity but rather, as explained in the later part of the literature review, because its validity and reliability have been largely recognized by a significant number of authors who sought to assess them.

Population and Sampling

Working adult students enrolled in a part-time undergraduate degree programme offered by the School of Business (SBZ) and the School of Social Services (SSS) at the participating institution represent the population of interest of this research.

To minimise the possible influence that a longer exposure to the blended and flexible teaching and learning mode of the participating institution might have on the participants' self-directed learning readiness, only level-1 and level-2 courses were selected as they include a large proportion of students in the early stages of their programme of study.

As there were access restrictions to the entire population of interest, this research used convenience sampling, a non-probabilistic sampling method that relies on the expressed desire by individuals within the targeted sample to take part in the research (Saunders et al., 2009).

The respondents' socio-demographic profile was expected to vary, but only within the entry requirements set by the participating institution, namely that all applicants must:

- be 21-year old or above
- be Singapore citizens, permanent residents or residents of Singapore
- have successfully completed either:
    - a GCE 'A' level with two passes (prior to 2006)
    - a local polytechnic diploma
    - an international baccalaureate
    - a National University of Singapore High School Diploma or
        - an equivalent educational qualification
- have a minimum of 2 years of working experience or be working at the time of their enrolment at the university.

Data Collection

Data Collection Instruments.

Research data was collected by way of a four-part, self-administered, and self-rated structured questionnaire.

Self-directed learning readiness scale. The first section of the questionnaire essentially reproduced the self-directed learning readiness measurement tool retained for this study, namely the learning preference assessment (LPA) questionnaire (Appendix A) developed to measure the respondents' self-directed learning readiness as expressed by their SDLRS score.

Drawing from a relative large number of slightly distinct but competing SDL measuring alternatives examined in the literature review (SDLRS, OCLI, BISL, SDLRS-NE, SDLTS, and SRSSDL), the ultimate choice of an SDLR assessment tool was not exclusively mandated by its popularity, recency, or the academic prestige of its creator; rather such a choice was guided by concerns for the reliability and validity of that instrument when measuring the construct(s) that the research aimed to examine.

The SDLRS was retained for this study because it is currently the most established instrument that has been devised to measure self-directed learning readiness (Delahaye & Choy, 2000; McCune, 1988; McGivney, 2009). Although the literature review has found a few authors who have expressed reservations about the validity of the scale, a majority of others has recognised both the validity and reliability of the SDLRS and since its inception in 1977, it has been used in more than 200 research studies and doctoral research dissertations.

To examine the reliability and validity of the SDLRS instrument in the context of this study, a formal request to identify the specific questionnaire items that evaluated each of the eight SDLRS factors was submitted to Professor Guglielmino. That request was however declined by Professor Lucy Guglielmino, as evidenced in an e-mail reply reproduced in Appendix G.

The Oddi Continuing Learning Inventory (OCLI) was also considered as a possible alternative, firstly because it appeared conceptually suitable to assess the level of self-directed learning and also because the use of a less popular but equally valid and reliable SDL measuring instrument would have strengthened the uniqueness of this study. However, this option was eventually set aside after it was concluded that the concerns expressed by some scholars about the validity of some factors included in the scale were left unanswered (Svedberg, 2010).

Education-related information. This part sought to collect information about the respondents' education background such as location and main mode of learning in primary and secondary school, attendance to private tuition at either or both of those levels, etc.

Work-related information. The third part of the questionnaire aimed to gather information about the respondents' employment status, occupational category, size of their organisation that employs them and the industry in which it operates, the organisational level achieved, etc.

Socio-demographic information. The last part of the questionnaire gathered mostly socio-demographic such as age, gender, race, ethnicity, marital status, etc.) that are mostly used as independent variables during data analysis (Appendix A).

Data Collection Procedure.

Prior to data collection, a research ethics clearance application detailing the purpose, intent, general design and research questions of the study, along with a copy of the two-part, socio-demographic and the Learning Preference Assessment (LPA) survey questionnaire was submitted to the Research Ethics Board of Athabasca University (AU-REB) and, upon approval from that body, to the Institutional Review Board of the participating institution.

After reviewing the application, an ethics approval certification was issued by the Athabasca University Research Ethics Board (AU-REB) on the 24th December 2014 (Appendix B). Before the beginning of data collection, that certification was homologated by the Institutional

Review Board of the participating institution, a homologation that exempted the research from the requirement to obtain a separate ethics approval certification from the participating institution. On the 11th December 2015, upon the principal investigator's request, the certification of ethics was renewed by AU-REB until the 22nd December 2016 (Appendix C) and the certificate was transmitted to Institutional Review Board of the participating institution. A similar renewal was obtained for another year on the 3rd of December 2017 (Appendix D).

Pre-Data Collection Briefings

During a regular semestrial degree programme meeting held on the 15th January 2015 at the participating institution, a first data collection briefing was given to the seminar instructors appointed to teach the tutorial groups of the courses targeted by the study.

During that first briefing, the data collection process was explained and the main points of the cover sheet of the survey questionnaire included in Appendix A were reviewed. Finally, the introductory and explanatory video that the instructors would be playing to the potential respondents prior to the distribution of the survey questionnaires was shown and the queries that they had about their role in the data collection process were also answered.

Two weeks before data collection, research assistants met the same instructors at their classroom venues to remind them of the four-step data collection process that was going to take place at their next seminar session and gave them the instruction sheet (Appendix E) that they would be following on the evenings that the survey questionnaires were to be administered.

These instructions are summarized as follows. Firstly, the instructors were to distribute the survey questionnaires to the students present in the class. Secondly, each instructor would then play a three-minute video where the principal investigator explained to the students the aims and purpose of the research, the general overview of the questionnaire and, in details, each point of the cover sheet explaining to the students, among other elements, the anonymity of their participation

or non-participation in the survey (see Appendix E – Script of the video; Appendix F - Slides of the video).

Thirdly, the instructor gave the students willing to participate in the research between 15 to 20 minutes to fill out the questionnaire. Those who did not wish to participate were allowed to take a break or to quietly read in class.

Finally, the instructor collected the survey questionnaires as and when each respondent was ready to hand it over, as well as from the non-participants who handed in their non-completed survey questionnaires at the same time. Furthermore, the completed and non-completed questionnaires were not separated at the time of collection but were all placed in the same pile.

While the process was entirely administered by the instructor in the classroom, each one could call upon the assistance of a research assistant to carry out the exercise. During the 2-week period of the data collection however, none of the instructors sought the help of their designated research assistant.

Data Collection Periods

The survey questionnaires were distributed and administered during the first face-to-face seminar session held during the third and fourth weeks of the January 2015 semester to a total of 33 different tutorial groups.

Before the beginning of each session, a research assistant provided each tutorial instructor with a sufficient number of copies of the survey questionnaire to be distributed to the students. One last time, the research assistant then briefly reviewed the data collection process that the instructors were to follow and that was explained to them twice before, once during the semestrial degree programme briefing and a second time, two weeks before the data collection date.

To avoid disrupting the class flow, the instructors were given the latitude of choosing at which point in time during the seminar session they would administer the survey questionnaire.

The process followed was straightforward: distribution of the survey questionnaires to the students, presentation of a three-minute video where the principal investigator explained to the students the aims and purpose of the research, the general overview of the questionnaire and, in detail, each point of the cover sheet detailing the full confidentiality of the student's participation or non-participation in the survey.

Students willing to participate started completing the survey questionnaire while the others left the classroom or quietly did some reading. No record of the participants or of the non-participants was kept. Furthermore, as attendance to face-to-face sessions is not compulsory at the participating organization, no class attendance or list of students is ever maintained so there is no possibility of identifying who did, or did not participate in the study.

Once data collection was completed, the research assistants entered the data into a Microsoft Excel spreadsheet. To ensure data integrity, two data-entry checks were carried out. The first one was done by the research assistants: the data entered by one research assistant was then verified by another research assistant. The second data entry verification was done by the principal investigator who carried out random checks on data-entry samples.

After the data collection was completed, the answers given by the respondents to the 58 questions pertaining to SDLRS were sent to a statistician appointed by Guglielmino & Associates, an organisation set up by Professor Guglielmino, the author of the SDLRS. The statistician replaced the missing values from the SDLRS section of the survey questionnaire with a value of 3 (the middling value in the Learning Preference Assessment 5-point Likert scale, interpreted as *Sometimes true of me/I feel this way about half the time*). This was done so that individuals with only one or a few missing responses could still obtain an SDLRS score and be included in subsequent analyses. However, participants who failed to answer more than 5 questions were excluded from the statistics carried out on SDLRS score, as it was the case for 28 of the survey

respondents. As a result, 758 respondents were retained for the computation of the reported statistics. To cross-validate the results communicated by Guglielmino & Associates, a separate set of descriptive statistics were computed on the same data set and following the same missing value rules, and the same results communicated by Guglielmino & Associates were obtained.

Chapter IV - DATA ANALYSIS

Aside from covering descriptive statistics, this section is divided into three main parts, each aimed at addressing one of the three questions that this research is examining, namely:

Q. 1 What is the extent of self-directed learning readiness among working adult Singaporean learners?

Q. 2 Is there a statistically significant relationship, among working adult Singaporean learners, between their prior exposure to private tuition and their self-directed learning readiness?

Q. 3 Is there a statistically significant relationship, among working adult Singaporean learners, between the organisational level they achieved at work and their self-directed learning readiness?

The data was collected through a survey questionnaire distributed to 33 different tutorial groups of students enrolled in undergraduate degree programmes offered by the School of Business (SBZ) or by the School of Social Services (SSS): 26 tutorial groups enrolled in one of 3 different business courses and 7 others registered in the same social science course. The uneven number of business and social science tutorial groups sampled is explained by the differing student access restrictions imposed by the two schools that agreed to let their students participate in the study.

As the students' attendance to face-to-face sessions is not compulsory, the participating institution does not maintain class attendance registers and for that reason, an exact response rate could not be precisely calculated.

However, the survey response rate can be estimated as the university provided the student enrollment figures for each of the 33 tutorial groups during the period that the research data was collected. The total student enrollment was 1299. Given an estimated average tutorial attendance

rate of 70%, there were an estimated 909 students who attended their tutorial when the survey was conducted. After collecting back 758 completed or partially completed questionnaires of the 909 distributed, the survey response rate can be estimated to be 83.4%.

Survey Respondents' Profile

As the participating institution provided socio-demographic data of the SBZ and SSS student population for four consecutive intakes (January and July 2014 as well as January and July 2015), some comparisons could be made between the general profile of the survey respondents and that of the population of interest.

Gender.

Table 4.1 shows that of the 703 survey respondents who identified their gender, 42.67% were male and 57.33% were female, indicating that the sample might have a gender imbalance when compared to Singapore's national gender distribution which counts 49.1% male and 50.9% female (Department of Statistics Singapore, 2015).

However, a similar gender imbalance is also found in the population of interest as the 4-semester student intakes of the two schools involved in the survey were comprised of 43.7% males and 56.3% females (Table 4.1). As such, the gender distribution of the collected sample appears to be very similar to that of population of interest.

Table 4.1

Observed and Expected Gender Distributions - Survey Respondents vs 4-Semester Student Population

Genders	Survey Respondents		4-Semester Student Population (Jan 2014 – July 2015)	
	n	%	N	%
Male	300	42.67	1712	43.70
Female	403	57.33	2210	56.30
Total	703	100.00	3922	100.00

A chi-square test of goodness-of-fit was performed to determine whether the sample gender distribution was representative of that of the population of interest. The results are reported in Table 4.2 below.

Table 4.2

Chi-square Goodness-of-fit - Gender

Pearson chi-square (1) =	0.3006	Pr =	0.583
Likelihood-ratio chi-square (1) =	0.3012	Pr =	0.583

Genders	Observed	Expected	Obs. – Exp.	Pearson
Male	300	307.211	-7.211	-0.411
Female	403	395.789	7.211	0.362

The statistical results reported in Table 4.2, x^2 (1, n = 703) = 0.3006, p = 0.583, indicate that at $\alpha = 0.05$, there is no evidence that the gender distribution of the sampled respondents is statistically different from that of the population of interest.

Race.

The data in Table 4.3 suggests that the race distribution of the sample appears to be very similar to that of the population of interest for Chinese and Indians. On the other hand, there is a slight over-representation for Malays and an under-representation of the *Other* race category, although the sample size of the latter is too small for statistically-useful comparisons.

To determine whether the race distribution of the sample was similar to that of the population of interest, a chi-square test of goodness-of-fit was performed and the statistical results reported in Table 4.4, x^2 (3, n = 709) = 15.8231, p = .001, indicate that the race frequency distribution of the sample is statistically different from that of the population of interest.

Table 4.3

Observed and Expected Race Distributions - Survey Respondents vs 4-Semester Student Population

Races	Survey Respondents		4-Semester Student Population (Jan 2014 – July 2015)	
	n	%	N	%
Chinese	512	72.21	2837	72.31
Malay	120	16.93	544	13.87
Indian	60	8.46	335	8.56
Other	17	2.40	206	5.26
Total	709	100.00	3922	100.00

Table 4.4

Chi-square Goodness-of-fit – 4 Race Groups

Pearson chi-square (3) =	15.8231	Pr =	0.001
Likelihood-ratio chi-square (3) =	18.3404	Pr =	0.000

Races	Observed	Expected	Obs. – Exp.	Pearson
Chinese	512	512.678	-0.678	-0.030
Malay	120	98.338	21.662	2.184
Indian	60	60.690	-0.690	-0.089
Others	17	37.293	-20.293	-3.323

As it appears that the Chinese and Indians were, on the other hand, only very slightly under-represented in the sample, another chi-square goodness-of-fit test was performed, combining, in

this instance, the Malay and Others races into a single category so as to determine whether this new race grouping would be representative of the population of interest (Table 4.5).

Table 4.5

Chi-square Goodness-of-fit – 3 Race Groups

Pearson chi-square (2) =	0.0226	Pr =	0.989
Likelihood-ratio chi-square (2) =	0.0225	Pr =	0.989

Races	Observed	Expected	Obs. – Exp.	Pearson
Chinese	512	512.678	-0.678	-0.030
Indian	60	60.690	-0.690	-0.089
Malay & Others	137	135.6	1.368	0.117

The statistical results reported in Table 4.5, x^2 (2, n = 709) = 0.0226, p = 0.989, indicate that there is no evidence that the sample's race frequency distribution is different from that of the population of interest.

Age.

The average age of the survey participants is 27.7 years, with a median age of 25 and a standard deviation of 6.74 years.

Figure 4.1 shows the age distribution of the respondents. In view of the 21-year minimum age requirement for admission to a part-time degree at the participating institution, there are no respondents below the age of 21. Interestingly, the oldest respondent was 70-year old, an obvious outlier in the sample collected but an example of the life-long learners that the participating institution attracts.

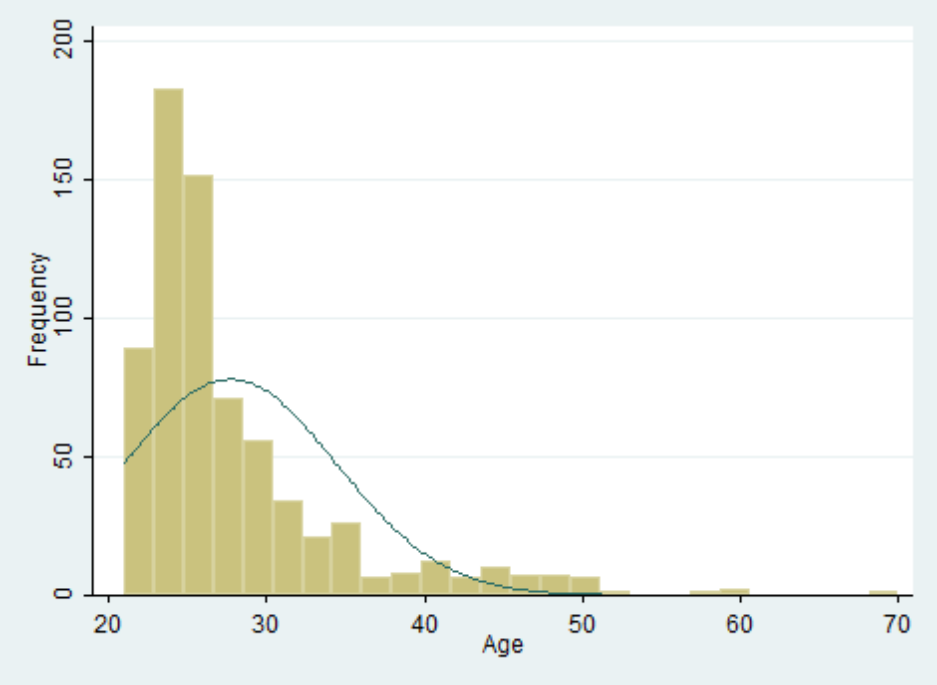

Figure 4.1. Age Distribution - Survey Respondents

The data presented in Table 4.6 indicates that the age distribution of the sample was heavily slanted towards the 21-to-25 and 26-to-30-year old groups as 78.83% of the respondents fell within those two ranges. This is reflected, albeit to a lesser extent, in the four-semester SBZ and SSS student population where 72% of the students belonged to the same two age groups.

The survey respondents were generally younger than the 4-semester student population from the same two schools. This is expected as empirical evidence suggests that over the years, the participating university has been attracting a younger cohort of students.

The age distributions of the survey respondents and that of the 4-semester student population appear to follow a similar chi-square distribution as both have high frequency percentages on their lower tail and significantly smaller ones on their higher tail, as shown in Figure 4.2.

Table 4.6

Observed and Expected Age Group Distributions - Survey Respondents vs 4-Semester Student Population

Age Groups (in years)	Survey Respondents		4-Semester Student Population (Jan 2014 –July 2015)	
	n	%	N	%
21 - 25	362	51.80	1912	48.75
26 - 30	189	27.00	905	23.07
31 - 35	74	10.60	480	12.24
36 - 40	32	4.6	275	7.02
41 & above	42	6.00	350	8.92
Total	699	100	3922	100

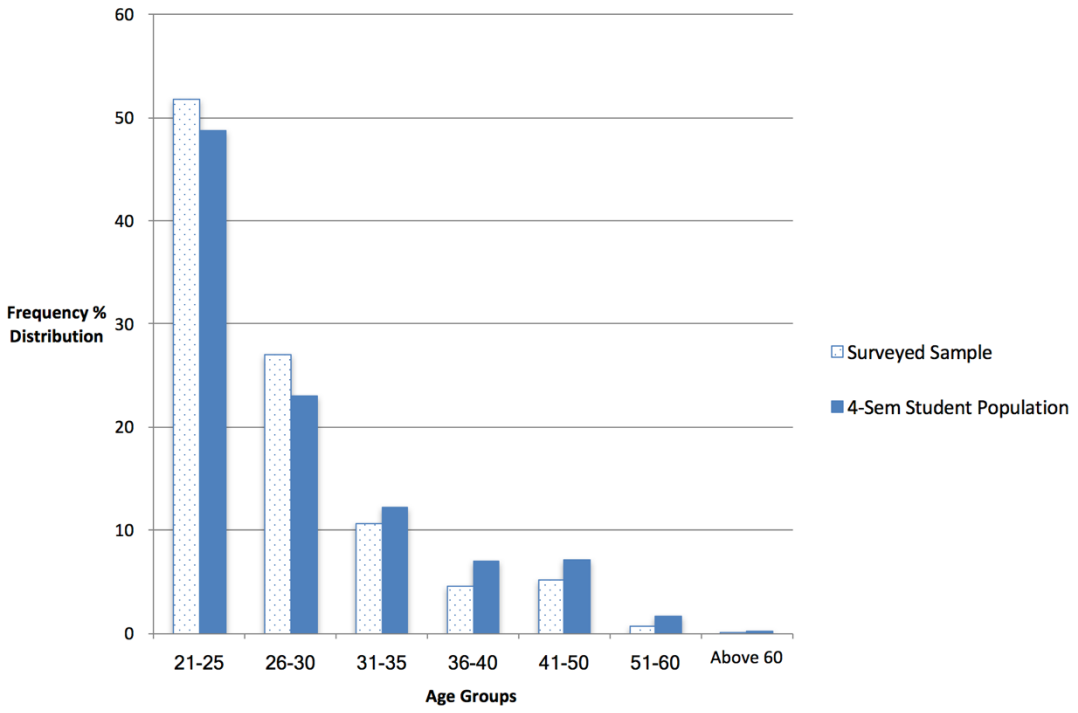

Figure 4.2. Age Group Frequency Percentage Distribution - Sample vs 4-Semester Student Population.

To determine whether the age distribution obtained from our sample was similar to that of the population of interest, a chi-square test of goodness-of-fit was performed and its results are reported in Table 4.7.

The statistical results reported in Table 4.7 above, x^2 (4, n = 699) = 20.204, p = 0.000, indicate that the sample's age frequency distribution is statistically different from that of the population of interest. It appears that the sample slightly over-represented students aged 21-25 and 26-30 while the remaining three older age categories tend to be under-represented.

Table 4.7

Chi-square Goodness-of-fit - Seven Age Groups

Pearson chi-square (6) = 20.204 Pr = 0.000

Age Groups	Observed	Expected	Obs. – Exp.	Pearson
21-25	362	340.8	21.2	1.150
26-30	189	161.3	27.7	2.185
31-35	74	85.5	-11.5	-1.250
36-40	32	49.0	-17.0	-2.429
41 & above	42	62.4	-20.4	-1.900
	699			

Working Experience.

The average number of years of working experience of the survey respondents upon enrollment into their programme of study was 5.8 years, with a standard deviation of 6.1 years. A glance at Table 4.8 suggests that the distribution of the respondents' years of working experience was heavily slanted towards lesser experience as more than one-third of the respondents (36.31%) have between two and three years of working experience and almost half of them (48.99%) have worked less than four years.

Using data from Table 4.8, a chi-square test of goodness-of-fit was performed to determine whether the distribution of years of working experience obtained from our sample was representative of that of the population of interest e.g. whether the working experience distribution among the respondents was statistically different from that of the 4-semester student population (Table 4.9).

Table 4.8

Observed and Expected Working Experience Distributions - Survey Respondents vs 4-Semester Student Population

Working Experience (in years)	Survey Respondents		4-Semester Student Population (Jan 2014 – July 2015)	
	n	%	N	%
Below 2 yrs	88	12.68	3238	43.21
2 - 3 yrs	252	36.31	1660	22.15
4 – 5 yrs	138	19.88	755	10.07
6 - 7 yrs	52	7.49	530	7.07
8 - 9 yrs	30	4.32	301	4.02
10 yrs and above	134	19.31	1010	13.48
Total	694	100.00	7494	100.00

The statistical results reported in Table 4.9, x^2 (5, n = 694) = 296.7445, p = 0.000, indicate that the working experience frequency distribution of the sample is statistically different from what would be expected from the population of interest. In particular, it appears that the survey respondents have more working experience than the student population as students with less than 2 years of working experience were largely under-represented in the research sample while the other categories of working experience tended to be over-represented.

Table 4.9

Chi-Square Goodness-of-fit - Working Experience Groups Observed vs Expected

Pearson chi-square (5) =	296.7445	Pr =	0.000
Likelihood-ratio chi-square (5) =	327.8255	Pr =	0.000

Work Exp. Groups	Observed	Expected	Obs. – Exp.	Pearson
Below 2 years	88	299.877	-211.877	-12.235
2-3 years	252	153.721	98.279	7.927
4-5 years	138	69.886	68.114	8.148
6-7 years	52	49.066	2.934	0.419
8-9 years	30	27.899	2.101	0.398
10 years and above	134	93.551	40.449	4.182

Primary and Secondary School Education.

This section provides descriptive statistics pertaining to the respondents' primary and secondary school education. It is followed by an overview of their exposure to private tuition during the same period.

Location of Primary and Secondary School Education.

As only Singaporeans and permanent residents are granted a Singapore government subsidy for their undergraduate studies at the participating institution, it is hardly surprising to find that more than 95% of the survey respondents have received their primary and secondary school education exclusively or mostly in Singapore (Tables 4.10 to 4.12 below). The majority of the other respondents are Malaysians who, after completing their primary and secondary school education in Malaysia, crossed the Straits of Malacca to work in Singapore where salaries are higher and the currency is significantly stronger than their home currency.

Table 4.10

Frequency Distribution - Location of Primary School Education

	n	%	Cumulative %
Only in SG*	708	94.15	94.15
Mostly in SG	8	1.06	95.21
Equally in SG and outside	9	1.20	96.41
Mostly outside SG	5	0.66	97.07
Only outside SG	22	2.93	100.00
Total	752	100.00	

* SG = Singapore

Table 4.11

Frequency Distribution - Location of Secondary School Education

	n	%	Cumulative %
Only in SG*	710	94.12	94.92
Mostly in SG	12	1.60	96.52
Equally in SG and outside	3	0.40	96.93
Mostly outside SG	0	0.00	96.93
Only outside SG	23	3.07	100.00
Total	748	100.00	

* SG = Singapore

Table 4.12

Cross-Tabulation - Location of Primary and Secondary School Education

Location of Secondary School Education	Location of Primary School Education: Only in SG	Mostly in SG	Equally in SG and outside	Mostly outside SG	Only outside SG	Total
Only in SG*	697	3	5	2	0	707
Mostly in SG	5	5	1	1	0	12
Equally in SG and outside	0	0	1	1	1	3
Mostly outside SG	0	0	0	0	0	0
Only outside SG	0	0	1	1	21	23
Total	702	8	7	5	22	745

* SG = Singapore

Teaching and Learning Mode During Primary and Secondary School.

Table 4.13 indicates that 98.54% of the respondents attended primary school where they learnt only or mostly through face-to-face teaching while a similarly large proportion of them, 95.3%, attended their secondary school where the delivery mode was the same (Table 4.14). Less than 1.5% of the respondents experienced some form of online teaching and learning during either their primary or secondary school. It appears that blended learning is a new experience for a very significant proportion of the respondents who not only have had little exposure to online learning but who are used to having direct, immediate, frequent, and regular contacts with their teachers and getting from them a close guidance and supervision of their learning (Table 4.15).

Table 4.13

Frequency Distribution - Teaching and Learning Mode - Primary School

	n	%	Cumulative %
Only face-to-face	569	75.77	75.77
Mostly face-to-face	171	22.77	98.54
Equally face-to-face & online	11	1.46	100.00
Mostly online	0	0	100.00
Only online	0	0	100.00
	751	100	

Table 4.14

Frequency Distribution - Teaching and Learning Mode - Secondary School

	n	%	Cumulative %
Only face-to-face	441	59.19	59.19
Mostly face-to-face	269	36.11	95.30
Equally face-to-face & online	34	4.56	99.87
Mostly online	1	0.14	100.00
Only online	0	0	100.00
	745	100	

Table 4.15

Cross-Tabulation - Teaching and Learning Mode - Primary and Secondary School

	Teaching & Learning Mode – Primary School					
Teaching & Learning Mode - Secondary School	Only face-to-face	Mostly face-to-face	Equally face-to-face & online	Mostly online	Only online	Total
Only face-to-face	420	18	0	0	0	438
Mostly face-to-face	131	138	0	0	0	269
Equally face-to-face & online	10	15	9	0	0	34
Mostly online	0	0	1	0	0	1
Only online	0	0	0	0	0	0
Total	561	171	10	0	0	742

Primary and Secondary School Private Tuition.

This section briefly reviews whether and where the survey respondents received private tuition during the primary and secondary school education.

Earlier in this study, private tuition was defined as a non-qualification bearing, part-time, one-to-one or small group, tutor-led instruction offered as remedial and/or supplementary sessions to help students cope with the school curriculum and/or improve their academic performance in the subjects covered in the national primary and secondary school curriculum.

Private Tuition Prior Exposure.

Figure 4.3 shows that 56.80% of the respondents received private tuition during their primary school while 43.20% did not. Interestingly, the almost exact opposite occurred during secondary school as only 42.50% of the respondents indicated having taken some form of private tuition while 57.50% did not.

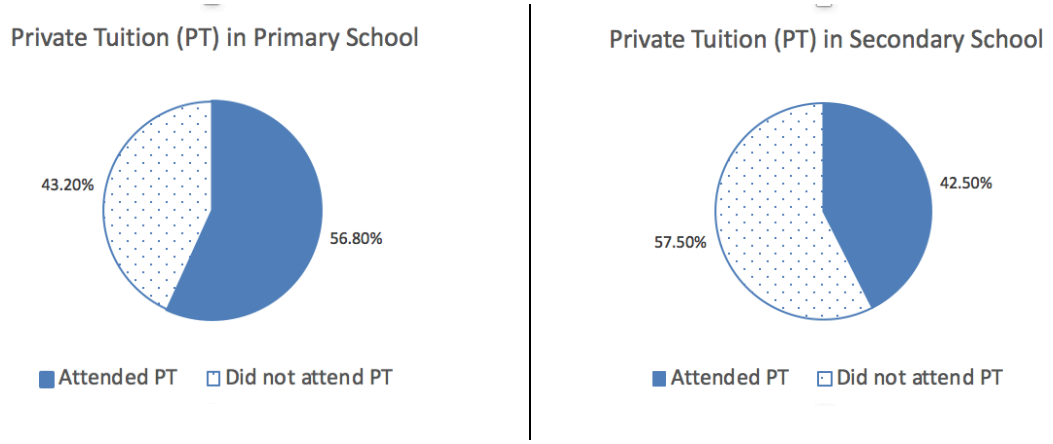

Figure 4.3. Percentage of Respondents Attending Private Tuition in Primary and Secondary School.

Table 4.16 below indicates that the proportion of respondents who never took private tuition at all (31.7%) is almost equal to those who received private tuition during both primary and secondary schools (31.0%). The same table suggests that more respondents received private tuition

during their primary school only (25.8%) than there are respondents who only received private tuition during their secondary school (11.5%).

Table 4.16

Cross-Tabulation - Private Tuition Attendance During Primary and Secondary School

		Attended Private Tuition During Primary School		
		Yes	No	Total
Attended Private Tuition During Secondary School	Yes	230 31.0%	85 11.5%	315 42.5%
	No	191 25.8%	235 31.7%	426 57.5%
	Total	421 56.8%	320 43.2%	741 100%

Private Tuition Location.

Table 4.17 provides a detailed breakdown of the locations of the private tuition attended by the respondents.

Taking a more holistic view of the findings about the respondents who benefitted from private tuition, Figure 4.4 reveals that during primary school, 40.4% of the respondents received private tuition only or mostly at home, another 25.5% attended them only or mostly at tuition centres while the remaining 34.1% received private tuition equally at home and at tuition centres. For the respondents who received private tuition during secondary school, 46.5% of them did it only or mostly at home, 33.3% only or mostly at tuition centres and the remaining 20.2% split their private tuition time equally between home and tuition centres.

Table 4.17

Frequency Distribution - Locations of Private Tuition Received During Primary and Secondary School

	Private Tuition Received During			
	Primary School		Secondary School	
Location of Private Tuition	Freq	%	Freq	%
Only at home	75	17.52	88	28.21
Mostly at home	98	22.90	57	18.27
Equally at home & tuition centres	146	34.11	63	20.19
Mostly at tuition centres	52	12.15	49	15.71
Only at tuition centres	57	13.32	55	17.63
Total	428	100.00	312	100.00

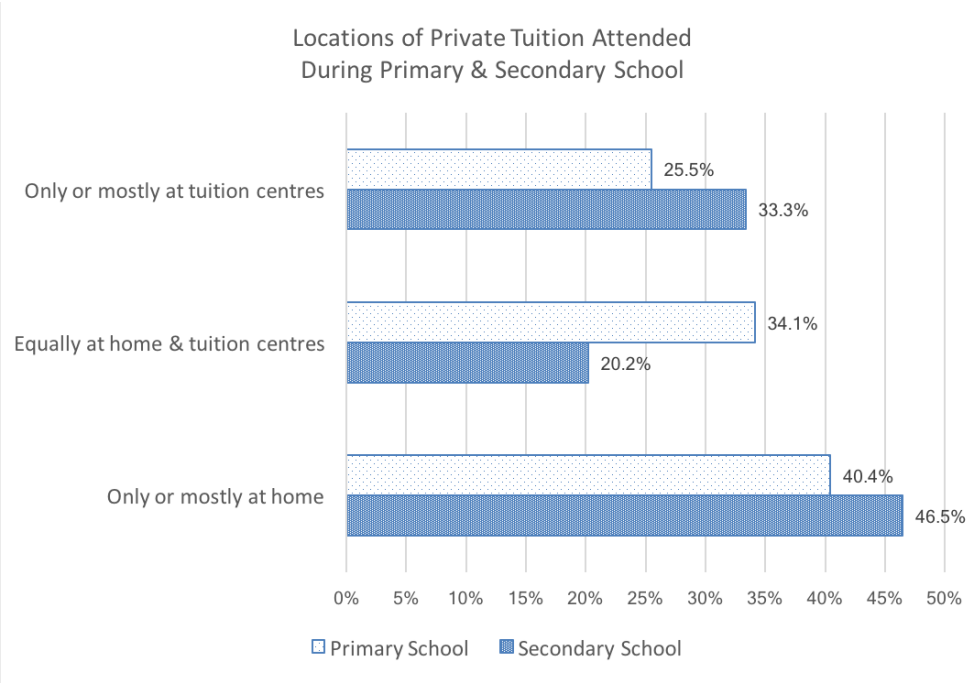

Figure 4.4. Frequency Distribution - Location of Private Tuition Received During Primary and Secondary School

The results of this study on the popularity of home-based private tuition are similar to those of Lee (2015a) who found that 34% of Singapore's primary school students and 43% of secondary school students who received private tuition did so in the comfort of their home environment.

Hence, overall, home was the main location where private tuition was dispensed to the respondents during both primary and secondary school. During secondary school, however, private tuition at tuition centres were more prevalent than during primary school. A few reasons could explain this phenomenon. Home is a safer, more comfortable environment for younger children and it is also a more convenient location for their parents who want to closely monitor the behaviour and progress of their child during the tuition session. On the other hand, as students going to secondary school are older and more independent than their younger counterparts, their parents are more willing to send them to tuition centres, partly because of their children's maturity but also because centre-based private tuitions are significantly more affordable than one-on-one tuition sessions delivered at home.

The remaining part of this section examines the data collected to answer the three separate but related questions that this research aims to address, namely:

Q. 1 What is the extent of self-directed learning readiness among working adult Singaporean learners?

Q. 2 Is there a statistically significant relationship, among working adult Singaporean learners, between their prior exposure to private tuition and their self-directed learning readiness?

Q. 3 Is there a statistically significant relationship, among working adult Singaporean learners, between the organisational level they achieved at work and their self-directed learning readiness?

Self-Directed Learning Readiness Among Working Adult Singaporean Learners.

The first part of the research survey examined the respondents' Self-Directed Learning Readiness Scale (SDLRS) score as computed from their answers to the 58 questions of the learning preference assessment (LPA) questionnaire devised by Guglielmino (1977).

Overview of the Sample's SDLRS Scores.

The sample of 758 respondents achieved an SDLRS mean score of 206.57, a median of 206 and a mode of 211, with a standard deviation of 22.53. The SDLRS lowest score was 134 and the highest was 277. The 95% confidence interval of SDLRS mean score falls between 204.97 and 208.18.

Ghasemi and Zahediasl (2012) recommends using the Shapiro-Wilk test to assess the normality of a data distribution. Such a test was carried out on the sample SDLRS score data and the findings are reported in Table 4.18.

Table 4.18

Shapiro-Wilk Test for Normality of the Sample's SDLRS Scores

	Observations	W	V	z	Prob. > z
SDLRS score	758	0.99706	1.441	0.894	0.18572

At a significance level of $\alpha = 0.05$, the *p*-value of 0.18572 indicates that the distribution of SDLRS scores obtained from the sample of respondents is consistent with a normal distribution.

SDLRS Score and Socio-demographic Variables.

To answer the first research question that seeks to determine the readiness for learning self-direction of working adult Singaporeans learners, the SDLRS score variations across the respondents' gender, age, ethnicity and working experience were assessed for statistical significance.

SDLRS Score and Gender

The data presented in Table 4.19 shows that the 300 respondents who indicated their gender as male achieved a slightly higher SDLRS mean score (207.79) than their 403 female counterparts (206.54). However, the 1.25 SDLRS mean score difference favouring the men is only 0.61% higher than the SDLRS mean score achieved by the women. The 95% confidence interval of the male respondents' SDLRS mean score falls between 205.09 and 210.50, while the respective confidence interval for the female respondents falls between 204.44 and 208.64.

Table 4.19

Summary Statistics - SDLRS Mean Scores Across Genders

Gender	Obs	SDLRS Mean Score	Std. Err.	Std. Dev.	95% Confidence Interval	
Male	300	207.7933	1.373484	23.78943	205.0904	210.4963
Female	403	206.5409	1.067943	21.4388	204.4415	208.6404

The overlap of the two 95% confidence intervals indicates that there is no statistically significant difference between the SDLRS mean scores of male and female respondents at $\alpha = 0.05$.

However, a simple comparison of SDLRS means does not constitute statistical evidence that men are self-directed learners to a greater extent than women. To verify the statistical validity of the SDLRS mean score differential noted between men and women, an independent t-test was carried out, and the results are presented in Table 4.20 below.

At $\alpha = 0.05$, the results of the independent *t*-test reported in Table 4.20 suggest that statistically, SDLRS mean score achieved by the female respondents (206.5409) is not significantly different from the one (207.7933) achieved by their male counterparts, $t\ (701) = -0.731$, $p = 0.465$.

Table 4.20

Independent t-Test - SDLRS Mean Scores Between Men and Women

			SDLRS Mean Scores	
			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F		2.389	
	Sig.		0.123	
t-test for Equality of Mean	t		-0.731	-0.720
	df		701	605.273
	Sig. (2-tailed)		0.465	0.472
	Mean Difference		-1.252	-1.252
	Std. Error Difference		1.714	1.740
	95% Confidence Interval of the Difference	Lower	-4.617	-4.669
		Upper	2.112	2.164

SDLRS Score and Age

As the respondents' age was found not to be following a normal distribution, a Spearman rank-order correlation was computed to examine the relationship between SDLRS score and age. This test was preferred to Pearson's correlation coefficient as, unlike the latter, the Spearman rank correlation does not require any assumption about the normality of the data distribution, its linearity or its homoscedasticity (Lani, 2018).

On the other hand, one assumption must be verified for the Spearman's rank-order correlation results to be valid (Laerd Statistics, 2018; Lani, 2018). Before such an analysis can be run, the two variables involved in the relationship must be either ordinal, interval or ratio, as it is the case for both the SDLRS score (interval) and age (ratio) variables.

Having satisfied its condition of application, a Spearman's rank-order correlation was carried out on the sample data to determine the relationship between the respondents' SDLRS score and their age. At $\alpha = 0.05$, $p = 0.130$, it has been determined that the correlation between SDLRS score and age ($r_s = 0.057$) is not statistically significant.

SDLRS Score and Race

Considering the statistics computed in Table 4.21 below, Chinese Singaporeans appear to have the lowest SDLRS mean score among the three major races, while Malays and Indians seem to fare somewhat better.

Table 4.21

Frequency Distribution - SDLRS Mean Scores Across Races

Race	Freq.	Mean	Std. Dev.
Chinese	512	205.79	22.31
Malay	120	210.15	23.32
Indian	60	210.50	20.67
Others	17	211.76	25.02
Total	709	207.07	22.46

After confirming that the SDLRS scores were normally distributed for each one of the four races, an Analysis of Variance (ANOVA) test was conducted to determine whether the SDLRS mean score differences among the sample's four races is statistically significant. Its results are summarised in Table 4.22.

Table 4.22

One-Way ANOVA - SDLRS Mean Scores Across Races

Source	SS	df	MS	F	Prob > F
Between groups	3064.16	3	1021.39	2.03	0.1079
Within groups	354173.73	705	502.37		
Total	357237.88	708	504.57		

Bartlett's test for equal variances: x^2 chi-square (3) = 1.5433 Prob> x^2 chi-square = 0.672

At a $\alpha = 0.05$ significance level, the *p*-value of 0.1079 indicates that the difference between the SDLRS mean scores across the sample's four races is not statistically significant.

Similarly, Bartlett's test for equal variance across races yields a x^2 chi-square value of 1.5433 and a *p*-value of 0.672. Therefore, at 0.05 significance level, we fail to reject the null hypothesis that the SDLRS mean score variances across races are equal.

SDLRS Score and Working Experience

As the respondents' years of working experience was found not to be following a normal distribution, a Spearman's rank correlation was computed to examine the relationship between the respondents' SDLRS score, an interval variable, and the number of years of working experience, a ratio variable.

At $\alpha = 0.05$, $p = 0.060$, it was determined that the correlation between the respondents' SDLRS score and their working experience was not significant. However, at a less stringent 10% significance level, that positive relationship would be marginally significant, albeit very weak ($r_s = 0.071$), suggesting that SDLRS scores tend to increase with the years of work experience that are acquired.

Self-Directed Learning Readiness and Private Tuition.

The second question that this research aims to answer concerns the possible relationship that might exist between the respondents' prior exposure to private tuition and their self-directed learning readiness. Table 4.23 below provides an overview of the SDLRS mean scores of the study respondents who indicated having received or not having received private tuition during their primary and/or secondary school.

Table 4.23

Frequency Distribution of SDLRS Mean Scores - Private Tuition During Primary & Secondary School

Groups	Attended Private Tuition in Primary School	Attended Private Tuition in Secondary School	n	%	SDLRS Mean Scores	SD
PYSY	Yes	Yes	230	31.0%	204.58	21.65
PYSN	Yes	No	191	25.8%	203.74	23.03
PNSY	No	Yes	85	11.5%	205.91	20.87
PNSN	No	No	235	31.7%	210.86	23.22
			741	100.0%	206.51	22.59

In this table and for the analyses and discussions that follow, each one of the four groups of respondents of interest to this part of the research on private tuition is labelled with a four-letter code. The letters *P* (primary school) and *S* (secondary school) refer to the education period considered while the letters *Y* (Yes) and *N* (No) indicate whether this group of respondents attended private tuition during each of these two education periods. Collectively, these groups are designated as *private tuition groups* in the analyses and discussions that follow.

A first glance at Figure 4.5 comparing the four groups of respondents suggests that those who received private tuition at some point during their primary or secondary school education (PYSY, PYSN and PNSY) achieved a lower SDLRS mean score than those who did not receive private tuition at all (PNSN).

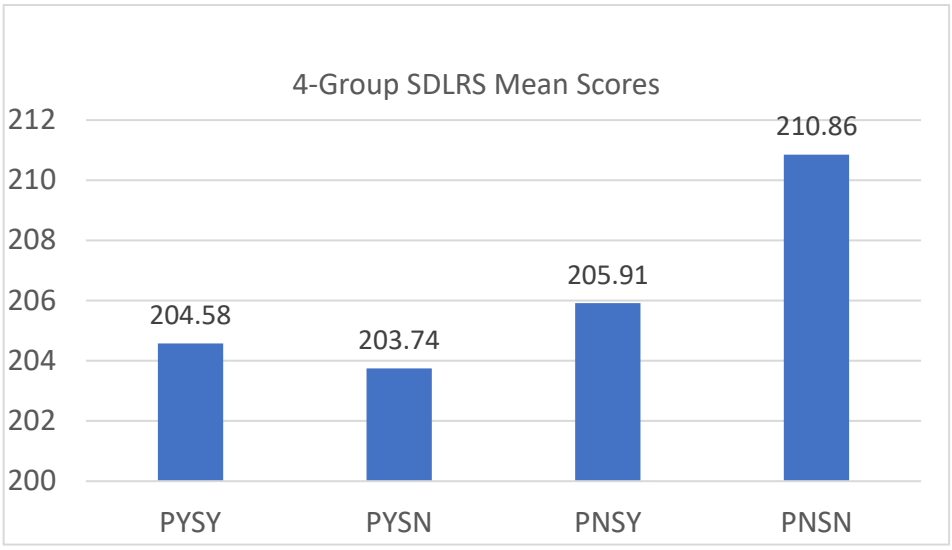

Figure 4.5. SDLRS Mean Scores Across Four Private Tuition Groups

A further discussion of the SDRLS mean score differences across the four private tuition groups considered cannot proceed without first determining if these differences are statistically significant.

A series of independent sample t-tests could be used to compare the means of each pair of groups. However, doing multiple independent t-tests (one independent sample t-test per pair of private tuition groups) would compound the probability of a Type-1 error, an issue that would greatly reduce the confidence that the findings of these correlation analyses are reliable.

To overcome this problem, a one-way ANOVA should be carried out as it allows for the mean comparisons of two (or more) groups in a single analysis, thus keeping the actual probability of Type-1 error at the 5% significance level set by the researcher (Laerd Statistics, 2017).

A one-way analysis of variance (one-way ANOVA) was therefore carried out to determine if the SDLRS means score differences between the four private tuition groups (PYSY, PYSN, PNSY and PNSN) are statistically significant.

Prior to that analysis, a Shapiro-Wilk test for normality was applied and verified that the SDLRS scores of each one of these groups were normally distributed, as reported in Table 4.24. Furthermore, a Levene's test indicated a homogeneity of variances (F = 0.711, p = 0.546) in the SDLRS scores achieved by the four private tuition groups (Table 4.25).

Table 4.24

Shapiro-Wilk Test for Normality - SDLRS Scores Across Private Tuition Groups

		Statistic	df	*p*-value
SDLRS Scores	PYSY	0.990	230	0.101
	PYSN	0.994	191	0.650
	PNSY	0.985	85	0.427
	PNSN	0.991	235	0.187

Table 4.25

Levene's Test of Homogeneity of Variances - SDLRS Scores Across Private Tuition Groups

SDLRS Scores

Levene 's Statistic	df1	df2	*p*-value
0.711	3	737	0.546

As reported in Table 4.26 below, there is at least one statistically significant SDLRS mean score difference among the groups, as determined by a one-way ANOVA (F(3.737) = 4.509, p = 0.004).

To identify which pair(s) of private tuition groups has(ve) statistically significant SDLRS mean score differences, a Least-Significant Difference (LSD) post-hoc test was conducted and its results are reported in Table 4.27 below.

Table 4.26

One-Way ANOVA - SDLRS Mean Scores Across Private Tuition Groups

Dependent Variable: SDLRS Score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6807.462	3	2269.154	4.509	0.004
Within Groups	370865.731	737	503.210		
Total	377673.193	740			

Table 4.27

Fisher's LSD Post-Hoc Test - SDLRS Mean Score Pairwise Comparisons Between Private Tuition Groups

Dependent Variable: SDLRS Score

Private Tuition Groups			Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
PYSY	vs.	PYSN	0.84439	2.19601	.0701	-3.4668	5.1556
		PNSY	-1.32327	2.84745	0.642	-6.9134	4.2668
		PNSN	-6.28122*	2.08067	0.003	-10.3660	-2.1965
PYSN	vs.	PYSY	-0.84439	2.19601	0.701	-5.1556	3.4668
		PNSY	-2.16766	2.92485	0.459	-7.9097	3.5744
		PNSN	-7.12561*	2.18539	0.001	-11.4159	-2.8353
PNSY	vs.	PYSY	1.32327	2.84745	0.642	-4.2668	6.9134
		PYSN	2.16766	2.92485	0.459	-3.5744	7.9097
		PNSN	-4.95795	2.83927	0.081	-10.5320	.6161
PNSN	vs.	PYSY	6.28122*	2.08067	0.003	2.1965	10.3660
		PYSN	7.12561*	2.18539	0.001	2.8353	11.4159
		PNSY	4.95795	2.83927	0.081	-.6161	10.5320

* The SDLRS mean score difference is significant at the 0.05 level.

At a significance level $\alpha = 0.05$, the LSD post-hoc test found statistically significant SDLRS mean score differences between two pairs of private tuition groups: PYSY and PNSN ($p = 0.003$) as well as PYSN and PNSN ($p = 0.001$).

In the first instance, the PNSN group of 235 respondents achieved an SDLRS mean score that was 6.28 higher than the SDLRS mean score of the PYSY group of 230 respondents, suggesting that those who did not receive private tuition at all are significantly more learning self-directed than those who attended private tuition during both their primary and secondary school education.

Similarly, the PNSN group also achieved an SDLRS mean score that, statistically, was significantly higher than the PYSN group. The SDLRS mean score difference of 7.13 between these two groups suggests that those who did not attend private tuition at all are more learning self-directed than those who only received private tuition during their primary school.

Applying a less stringent significance level $\alpha = 0.10$, the Fisher's LSD post-hoc test found a marginally significant SDLRS mean score differences between the PNSN and the PNSY groups ($p = 0.081$). This finding suggests that those who did not attend private tuition at all are more learning self-directed than those who only received private tuition during their secondary school education, although the SDLRS mean score difference (4.95795) between these two groups is somewhat narrower than the other two SDLRS mean score differences found above in the PNSN-PYSY and PNSN-PYSN private tuition groups.

Self-Directed Learning Readiness And Organisational Level.

The third and last question of this research aims to determine whether there is a statistically significant relationship, among working adult Singaporean learners, between the organisational level they achieved at work and their self-directed learning readiness.

As Table 4.28 shows, 68.0%, or 442 of the 650 respondents who indicated the current organisational level they occupy at work, mentioned that they are assuming responsibilities at a non-managerial, entry-level position in their organisation.

Table 4.28

Frequency Distribution and SDLRS Mean Scores Across Organisational Levels

Organisational Levels	Frequency	Percentage	Cumulative Percentage	SDLRS Mean Score	Standard Deviation
Entry-Level	442	68.00	68.00	204.85	22.539
1st Managerial Level	124	19.08	87.08	210.60	22.505
2nd Managerial Level	48	7.38	94.46	208.19	22.373
3rd Managerial Level and above	36	5.54	100.00	212.89	21.817
Total	650	100.00			

This is hardly surprising: given that the age of almost 52% of the respondents falls between 21 and 25, a significant number of them are at the early stages of their career and, in most instances, would not have accumulated enough experience nor had enough time to consistently demonstrate the level of performance needed to be promoted to a supervisory (1st managerial level) position.

Table 4.28 also shows the SDLRS mean scores obtained by the respondents placed into 4 organisational levels.

To determine whether the differences in the SDLRS mean scores across organisational levels were statistically significant, a one-way ANOVA was carried out, after confirming the homogeneity of variance across organisational level groups through a Levene's test as well as verifying that the SDLRS scores were normally distributed across the same groups. The one-way ANOVA results are reported in Table 4.29.

Table 4.29

One-Way ANOVA – SDLRS Mean Scores Across Organisational Levels

Source	SS	df	MS	F	Prob > F
Between groups	4880.763	3	1626.921	3.219	0.022
Within groups	326505.551	646	505.427		
Total	331386.314	649			

At α = 0.05, the results of a one-way ANOVA, (F(3,649) = 1.96, (p = 0.022)) indicate that there is a statistically significant difference in the SDLRS mean scores between at least two groups of job holders. A Fisher's LSD post-hoc test was carried out to determine for which groups the SDLRS mean scores were statistically different and the results are reported in Table 4.30, below.

Table 4.30

Fisher's LSD Post-Hoc Test - SDLRS Mean Score Pairwise Comparisons Between Four Organisational Levels

Dependent Variable: SDLRS Score

Organisational Levels		Mean Difference	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Entry-level	1st mgr. lvl.[1]	-5.748*	2.285	0.012	-10.23	-1.26
	2nd mgr. lvl.	-3.339	3.417	0.329	-10.05	3.37
	3rd mgr. lvl. & above	-8.040*	3.897	0.039	-15.69	-0.39
1st mgr. lvl.	Entry-level	5.748*	2.285	0.012	1.26	10.23
	2nd mgr. lvl.	2.409	3.822	0.529	-5.10	9.91
	3rd mgr. lvl. & above	-2.292	4.256	0.590	-10.65	6.07
2nd mgr. lvl.	Entry-level	3.339	3.417	0.329	-3.37	10.05
	1st mgr. lvl.	-2.409	3.822	0.529	-9.91	5.10
	3rd mgr. lvl. & above	-4.701	4.957	0.343	-14.43	5.03
3rd mgr. lvl. & above	Entry-level	8,.040*	3.897	0.039	0.39	15.69
	1st mgr. lvl.	2.292	4.256	0.590	-6.07	10.65
	2nd mgr. lvl	4.701	4.957	0.343	-5.03	14.43

[1] mgr. lvl.: managerial level

* The SDLRS mean score difference is significant at the 0.05 level.

The analysis reported in Table 4.30 suggests that there are two pairs of job holder groups that have statistically significant SDLRS mean score differences. The group of respondents occupying entry-level positions had a 5.748 SDRLS mean score deficit compared to those holding a 1st managerial level, supervisory position. Similarly, the same entry-level jobholder group also had a 8.040 SDRLS mean score deficit when they were compared to those holding 3rd and above managerial positions.

Another interesting comparison can be made between, on the one hand, the SDLRS mean score of those occupying entry-level positions and, on the other hand, the SDLRS mean score those working at any managerial level in their organisation.

Table 4.31 reports on that difference and suggests that the 210.44 SDLRS mean score computed for the respondents who stated that they were managers is indeed higher than the one achieved by the respondents who indicated working at entry-level positions (204.85).

To verify the statistical validity of the SDLRS mean score differential noted between managerial and entry-level positions, an independent t-test was carried out, and the results are presented in Table 4.32 below.

Table 4.31

SDLRS Mean Scores - Entry Level vs All Managerial Levels

Organisational Levels	Obs	SDLRS Mean Scores	Std. Err.	Std. Dev.	95% Confidence Interval	
Entry-Level	442	204.85	1.072	22.539	202.74	206.96
All Managerial Levels	208	210.31	1.575	22.489	207.21	213.42

Table 4.32

Independent t-Test - SDLRS Mean Scores - Entry Level vs All Managerial Levels

			SDLRS Mean Scores	
			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F		0.050	
	Sig.		0.824	
t-test for Equality of Mean	t		-2.867	-2.869
	df		648	395.702
	Sig. (2-tailed)		0.004	0.004
	Mean Difference		-5.465	-5.465
	Std. Error Difference		1.906	1.905
	95% Confidence Interval of the Difference	Lower	-9.209	-9.210
		Upper	-1.722	-1.720

At $\alpha = 0.05$, the results of the independent t-test reported in Table 4.32 suggest that statistically, the SDLRS mean score of 204.85 achieved by the respondents occupying an entry level position is significantly lower than the SDLRS mean score (210.31) of those who declared occupying a managerial position, $t\ (648) = -2.867, p = 0.004$). This indicates that employees holding entry-level positions are less learning self-directed than their counterparts occupying supervisory and other managerial positions.

The key findings of the data analysed in this chapter are as follows:

1. The respondents of this study achieved an SDRLS mean score of 206.57.
2. No statistically significant differences were found in the SDLRS mean scores across gender, age or race. However, a very weak relationship was found between the SDLRS mean scores and the respondents' working experience, suggesting that the longer

individuals work, the more learning self-directed they become. However, this relationship was only found to be marginally significant.

3. Statistically significant differences were also found between the SDLRS mean scores of those who never attended private tuition during their primary and secondary school and those who:
    a. attended private tuition during both primary and secondary school
    b. attended private tuition during primary school only.

    Another (but only marginally) significant relationship was found between the SDLRS mean scores of those who never attended private tuition during their primary and secondary school and those who attended private tuition during secondary school only.
4. The organisational level that working adult Singaporeans achieved at work is positively correlated to their self-directed learning readiness, but only for two groups: employees holding entry-level positions compared to those holding a 1st managerial level position or compared to those holding 3rd and higher managerial positions. Furthermore, the SDLRS mean score difference between managers and non-managers was also found to be significant.

Chapter V – RESULTS AND DISCUSSION

This chapter will review the findings outlined in the previous one and discuss the possible interpretations that they can be given, their significance on the research problem as well as the questions being investigated and the new insights that can be gained for the institution where the study was conducted as well as, where possible, for the larger educational context of Singapore.

The discussion first covers findings from the profile of the survey respondents and then draws a comparison between the respondents' readiness for learning self-direction vis-à-vis the findings of other studies targeting adult respondents. It then moves on to review the interpretations and implications of the findings of this research on the relationship between private tuition and SDLR as well as the one between organisational level and SDLR.

Survey Respondent Profile

Depending on the demographic variable considered, the profile of the surveyed respondents appears to be, at times, representative but at others, it is not representative of the 4-semester student population of the participating institution, the population of interest defined in this research.

Among the respondents' profile characteristics that appear to be representative of the population, the gender distribution of the research sample has been found not to be statistically different from that of the population of interest. To a lesser extent, the race distribution of the survey respondents is also representative of that of the population of interest, but only for the Chinese and the Indian races, after combining the Malay respondents with the *Other* race category.

On the other hand, the age and working experience of the sample have not been found to be representative of the population of interest. The sample slightly over-represented students aged 21-25 and 26-30 while the two older age categories tend to be under-represented. Similarly, the

distribution variations between the sample and the population of interest were mostly noticeable for students with less than 2 years of working experience were largely under-represented in the research sample while the other categories of working experience tended to be over-represented.

The varying conclusions that were reached about the sample's representativeness of the population of interest can be explained, at least partially, by the fact that a random sampling method could not be used prior to data collection, a limitation imposed by access restrictions to potential respondents.

Considering that, for many socio-demographic variables, the sample has not been found to be representative of the population of interest, the external validity of the research findings cannot be assumed and therefore, the latter may not be extended to apply to all the working adult learners enrolled in a part-time undergraduate degree programme offered by the School of Business (SBZ) and the School of Social Services (SSS) of the participating institution, the population of interest defined in this research.

SDLRS Mean Scores Among Working Adult Singaporean Learners

General Comparison of SDLRS Mean Scores.

Combining the findings of a number of prior studies on self-directed learning readiness that relied on the SDLR scale (SDRLS) to measure that construct, Guglielmino & Guglielmino (2017) have determined that, overall, adults achieved an SDLRS means score of 214 with a standard deviation of 25.59 (Figure 5.1). Comparatively, the working adult Singaporean learners in this research achieved an SDLRS mean score of 206.57. At $\alpha = 5\%$, with a 95% confidence interval of 204.97 to 208.18, and a *p*-value = 0.000, the sample's SDLRS mean score is, statistically, significantly lower than that achieved by the adults reported by Guglielmino & Guglielmino.

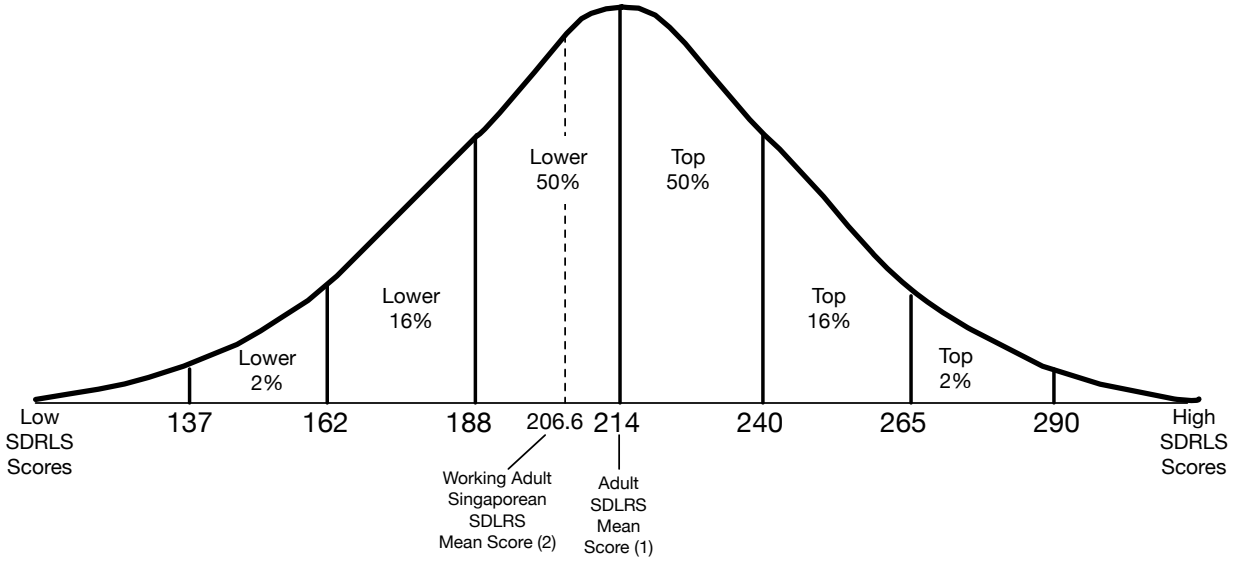

Figure 5.1. Adult SDLRS Score Distribution (1) and Surveyed Respondents SDLRS Mean Scores (2)

To interpret the LPA questionnaire results, Guglielmino & Guglielmino (2017) divide the range of possible SDLRS scores into three groups describing the respondents' readiness for self-directed learning as below average (SDLRS scores between 58 and 201), average (SDLRS scores between 202 and 226) or above average (SDLRS scores ranging from 227 to 290).

Guglielmino & Guglielmino (2017) explain that while individuals with an average SDLRS score can still be effective in more independent situations, they are nonetheless not entirely comfortable in situations requiring them to identify their learning needs as well as plan and implement their own learning strategies. Comparatively, individuals with a below-average SDLRS score tend to prefer a very structured learning environment such as lectures and traditional classroom settings.

The 206.6 SDLRS mean score computed in this study indicates that the readiness for self-directed learning of the surveyed respondents falls within the average range and that adult Singaporeans can be successful in situations requiring a certain degree of self-direction. This is however only true for 42.1% of the respondents (Table 5.1). An almost equal proportion of them

(41.0%) scored a below-average SDLRS score, suggesting that many of the respondents are not comfortable with learning self-direction and that given a choice, they would still prefer very structured learning options.

Table 5.1

SDLRS Score Categories and Surveyed Respondents Distribution

SDLRS Score Range	Category of Readiness for Self-Directed Learning	Observed No. of Surveyed Respondents	%
227-290	Above average	128	16.9
202-226	Average	319	42.1
58-201	Below average	311	41.0
		758	100

A chi-square goodness-of-fit test was conducted to assess whether the SDLRS score distribution obtained from the sample was representative of the SDLRS score distribution obtained by Guglielmino & Guglielmino (2017) across the three categories that the latter have established (below average, average, and above average).

The statistical results reported in Table 5.2, x^2 (2, n = 758) = 78.0925, p = .000, indicate that the frequency distribution of respondents across the three SDLRS score categories is statistically different from the distribution across the same categories reported by Guglielmino & Guglielmino (2017). It appears that the below average and average categories were over-represented in the research sample while the above average was under-represented.

Table 5.2

Chi-Square Goodness-of-Fit – Expected and Observed SDLRS Mean Score Categories

Pearson chi-square (2) = 78.0925 Pr = 0.000

Likelihood-ratio chi-square (2) = 86.2825 Pr = 0.000

SDLRS Mean Score Categories	Observed	Expected	Obs. – Exp.	Pearson
Below Average	128	238.012	-110.012	-7.131
Average	319	281.976	37.024	2.205
Above Average	311	238.012	72.988	4.731

Comparison with SDLRS Mean Scores Across Selected Countries.

Guglielmino & Guglielmino (2011) collated SDLRS mean scores from various research studies conducted in 16 countries, all involving adults in either an educational or a workplace setting. Most results shown in Table 5.3 below were obtained through convenience samples drawn from the SDLRS mean score database maintained by Guglielmino & Guglielmino (2017). Interestingly, the SDLRS mean score that they reported from an unidentified Singapore study was 207 i.e. very similar to the 206.57 SDLRS mean score obtained from the sample used in this research.

Overall, the adult Singaporean learners surveyed in this study achieved an SDLRS mean score that fell within 6 points of the 16-country SDLRS weighted mean score of 213.78. Singapore is also ranked almost exactly in the middle of the selected countries surveyed by Guglielmino & Guglielmino (2011), holding an SDLRS 20-point mean score advantage over the lowest-ranked Guatemalans and Hondurans (187) and a 21-point deficit when compared to the highest-ranked American adults (238).

Table 5.3

SDLRS Mean Score Comparison Across 16 Countries

Country	N	SDLRS Mean Scores	Singapore's SDLRS Mean Score Variations Compared to Other Countries
U.S.	1706	238	-13.0%
Canada	214	225	-8.0%
Australia	172	221	-6.3%
Hong Kong	655	219	-5.5%
Germany	393	217	-4.6%
U.K.	79	216	-4.2%
Portugal	384	216	-4.2%
India	300	210	-1.4%
Singapore	289	207	0.0%
Ireland	358	207	0.0%
Lithuania	628	205	1.0%
Latvia	133	202	2.5%
China	273	189	9.5%
Japan	921	187	10.7%
Guatemala	178	187	10.7%
Honduras	70	187	10.7%
Total	6753		
	Average:	208.31	
	Weighted Average:	213.78	
	Weighted Average: (excluding Singapore)	214.08	

Adapted from: Guglielmino, P. J. and L. M. Guglielmino (2011). An exploration of cultural dimensions and economic indicators as predictors of self-directed learning readiness. *International Journal of Self-Directed Learning 8*(1): 29-45.

In Asia (Table 5.4), the adult Singaporeans' SDLRS mean score was only 3.4% higher than the SDLRS weighted average score of the other 4 Asian countries, 10.7% higher than the Japanese and 9.5% above that of their Chinese counterparts. On the other hand, it was 1.4% lower than the SDLRS mean score achieved by Indians and 5.5% lower than their counterparts from Hong Kong.

Table 5.4

SDLRS Mean Score Comparison Across 5 Asian Countries

Country	N	SDLRS Mean Scores	Singapore's SDLRS Mean Score Compared to Other Countries
Hong Kong	655	219	-5.5%
India	300	210	-1.4%
Singapore	289	207	0.0%
China	273	189	9.5%
Japan	921	187	10.7%
Total	6753		
	Average:	202.40	
	Weighted Average:	201.02	
	Weighted Average: (excluding Singapore)	200.22	

With individuals of Chinese ethnicity forming more than 75% of the Singapore population, it is interesting to note that the SDLRS mean score obtained by the Singaporean Chinese from the sample was 205.79, a 16-point SDLRS mean score advantage over their counterparts from China. This seems to be aligned with the researcher's instinctive assumption that readiness for learning self-direction cannot be explained by ethnicity alone, a conclusion that Morris (1995) had previously reached.

In that regard, a possibly more useful SDLRS score comparison can be made between Singapore and Hong Kong as a significant proportion of their respective population is of Chinese ethnicity and also because, historically, both countries have been influenced by the British culture and education system. From that standpoint, the 11-point SDLRS mean score advantage that Hong

Kong Chinese have over Singaporean Chinese suggests that the former could be more learning self-reliant than the latter.

Among the factors that might explain that difference, one could look at the cultural differences between Singapore and Hong Kong, two countries where ethnic Chinese represent a very large proportion of the population.

Hofstede (2016) compared Hong-Kong and Singapore along six cultural dimensions: power distance, masculinity, long-term orientation, indulgence, individualism and uncertainty avoidance (Figure 5.2).

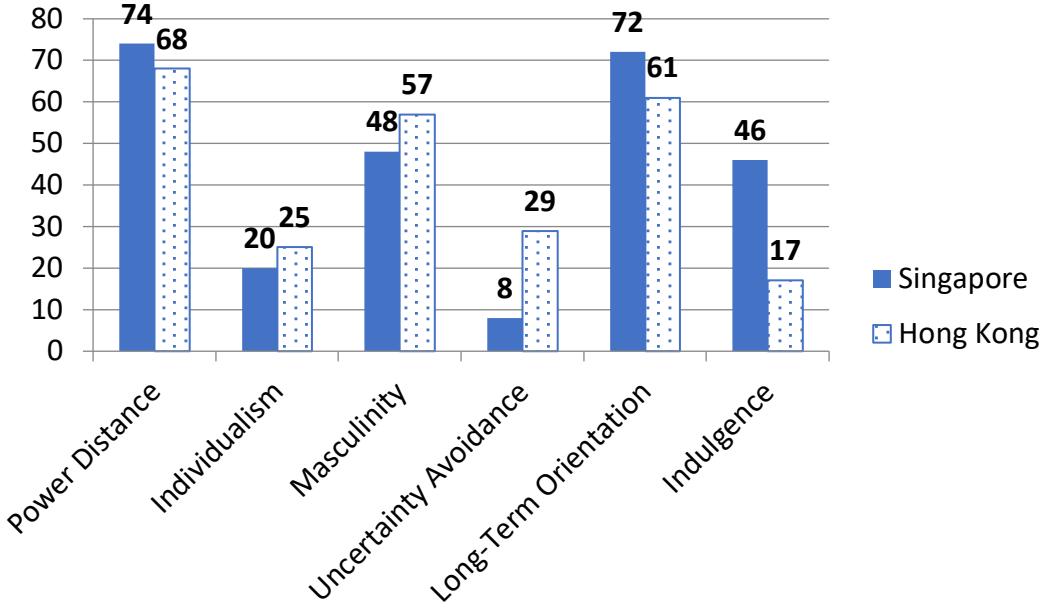

Figure 5.2. Hofstede Cultural Dimension Comparison - Singapore vs Hong Kong
Source: *https://geert-hofstede.com/singapore.html*

Linking individualism to self-reliance, Hofstede (2016) explains: "In Individualist societies, people are supposed to look after themselves and their direct family only. In Collectivist societies, people belong to 'in groups' that take care of them in exchange for loyalty." In a prior publication, Hofstede (1986) added that in individualistic societies, one is never too old to learn and that throughout his life, one is on permanent education. Triandis (2001); Triandis and Gelfand (1998)

as well as Wagner III (1995) add that individualism is characterised not only by a perception of oneself being distinct from others but also by a person's inclination towards self-reliance.

Although Hofstede describes both Singapore and Hong Kong cultures as collectivist, the people from Hong Kong still have a higher score on the individualism dimension (25) than Singaporeans (20). As Guglielmino & Guglielmino (2011) found that Hofstede's individualism scores significantly predicted SDLRS mean score, this might suggest that the higher SDLRS mean score achieved by the Chinese from Hong Kong can be explained in part by their more pronounced inclination towards individualism.

Other possible factors that may explain the variance between the SDLRS mean score achieved by the respondents of this study and those of other adults worldwide are briefly discussed in chapter 6, under the section *Research Finding Significance and Implications*.

SDLRS Score and Socio-Demographic Variables

This study found that there is no statistically significant relationship between SDLRS scores and gender, a conclusion that is aligned with the findings of a number of prior studies (Reio & Davis, 2005; Boden, 2005). It is to be noted, however, that a review of the literature suggests that the correlation between SDLRS scores and gender remains inconclusive. For instance, (Morris, 1995) concluded that, statistically, males were found to have a significantly lower SDLRS scores than their female counterparts while other researchers reported the opposite, concluding that female respondents had significantly lower SDLRS scores than males (Durr, 1992).

While this study did not find a significant correlation between the respondents' age and their readiness for learning self-direction as measured by their SDLRS score, the findings from prior research (Morris, 1995; Reio & Davis, 2005) concluded that those in their 30s, 40s, and 50s had higher self-directed learning readiness scores than adolescents and young adults. However, the findings from this research can hardly be compared to those from these prior studies because

the profile of the respondents who participated in this research was limited to the market segment of working adults who do not have a degree qualification, one of the main admission criteria set by the participating institution. As the respondent profiles across the studies were clearly different, a comparison between their findings cannot, therefore, reliably be made.

Like prior studies (Adenuga, 1989, 1991), this research found a marginally significant, positive but weak relationship between an individual's SDLRS score and his work experience. From birth until the first day of kindergarten or school, toddlers will likely develop through a mixture of self-initiated learning – as they spend most of their time discovering the environment on their own – and of their parents/guardian-directed teaching. On the other hand, however, from their first school days until they enter the workforce, individuals would mostly learn through teacher-centric and directed pedagogy as the education system provides a formal structure where the learning outcomes are pre-determined, the learning process needed to define problems and to develop solutions is provided and explained by the teachers who also decide how and how often the learning will be assessed. Because of the significant time that this formal schooling takes on a daily basis, individuals gradually lose the impetus to learn on their own and the inclination to direct their own learning might noticeably decrease. This issue is not limited to Singapore or the Asian continent: it appears to be a Western phenomenon as well. Speaking of students motivated by extrinsic values such as GPA, money, fame and image, Twenge and Donnelly (2016) laments: "current students see the classroom as transactional and have little interest in learning anything that they will not be tested on" (p. 621). Hassel and Lourey (2005) go further: "More than ever, college instructors have reason to believe that their students are out of touch with what their grades really symbolize, why they are even in college, *and what responsibilities they have as students*" (p. 2). *[Italics were added for emphasis)*

However, once their formal education is completed, individuals enter the labour market and secure jobs in organisations where formal and very structured learning opportunities are significantly less frequent than during their school days. Admittedly, training programmes do exist but the often-unstructured on-the-job training methods are preferred because they are less work-disruptive and generally, they also require less time and resources. Supervisors also expect their subordinates to not only identify their learning needs but to also learn some aspects of their job on their own, expectations that may promote the development of learning self-direction skills or activate the individual's learning self-directed traits that might have been dormant.

Furthermore, to compete with their peers within their organisation as much as with those in the labour market, employees cannot rely solely on the training that their companies provide. Following the disappearance of the psychological contract (Argyris, 1960; Levinson, 1962) that used to bind employees' loyalty to organisations providing them long-term, if not lifelong employment (Hiltrop, 1995), employers tend to selectively offer training and development opportunities to employees who can satisfy their short-to-mid-term needs while being wary of wasting training time and other resources on employees who might leave and work for other organisations. As such, individuals must figure out their own training and development needs, secure the learning resources that will serve to satisfy those needs and assess their own learning if they want to improve their lateral and upward mobility chances within but also, and as importantly, outside their current organisation.

This reality was recently recognised by the Singapore government when, in 2014, it launched a comprehensive nationwide programme to encourage employees to manage their own training and development needs, with financial support from the government through SkillsFuture credits ("SkillsFuture", 2017a).

Over time, such programmes do help employees achieve a certain level of job mastery. At the same time, they assume that the latter are able to identify their learning needs, a defining trait of readiness for learning self-direction that a certain percentage of them might not have.

SDLRS Score and Private Tuition

The second question that this research sought to examine concerns the existence and nature of the relationship, among working adult Singaporean learners, between their prior exposure to private tuition and their readiness for learning self-direction, as measured by their SDLRS score.

Sylva (1994) suggests: "The strongest research design for examining the effects of any educational experience on children's lives is to compare those who have attended it with those who have not" (p. 143). As such, during data analysis, the focus was set on four different groups of respondents, classified according to whether they had previously received private tuition during their primary and/or secondary school education. To differentiate them, each group was tagged with a four-letter identifier (Table 5.5). The letters *P* (primary school) and *S* (secondary school) referred to the education period considered while the letters *Y* (Yes) and *N* (No) indicated whether this group of respondents attended private tuition during each one of these two education periods.

Table 5.5

Respondent Groupings and SDLRS Mean Scores According to Their Prior Exposure to Private Tuition During Primary & Secondary School

Group	Attended Private Tuition in Primary School	Attended Private Tuition in Secondary School	SDLRS Mean Scores
PYSY	Yes	Yes	204.58
PYSN	Yes	No	203.74
PNSY	No	Yes	205.91
PNSN	No	No	210.86

Table 5.6, below, presents the two pairs of private tuition groups whose SDLRS mean score differences were found to be statistically significant during data analysis, ranked according to their SDLRS score differential. All the other group pair comparisons that were not statistically significant have been excluded from the table.

Table 5.6

SDLRS Mean Scores & Percentage Differentials Across Selected Groups of Respondents

Diff. Rank	Group Pair	SDLRS Mean Score Differential	SDLRS Mean Score % Differential	LSD Post-Hoc *p*-value	Significance Level
1	PNSN – PYSN 210.86 - 203.74	7.126	3.50%	0.001	α = 0.05
2	PNSN – PYSY 210.86 - 204.58	6.281	3.07%	0.003	α = 0.05
3	PNSN – PNSY 210.86 - 205.91	4.958	2.41%	0.081	α = 0.10

PNSN, the group of respondents who never received private tuition, achieved the highest SDLRS mean score (210.86) of the four groups, although the SDLRS mean score differential with the other three groups was only found to be statistically significant with two of them: those who attended private tuition throughout primary and secondary school (PYSY) and those who only received private tuition in primary school (PYSN). A less convincing, marginally significant difference was also found between PNSN and those who received private tuition during secondary school only (PNSY) (Table 5.6).

Among the three group pair comparisons that were found to be statistically significant, the PNSN group achieved, as expected, the highest SDLRS mean score. This is hardly surprising as without being able to rely on the assistance of a tutor outside of the classroom, respondents without prior exposure to private tuition are likely to have had more opportunities to develop self-directed learning readiness skills after school than those who received private tuition in primary and/or

secondary school. As the respondents in both the PYSY and PYSN groups could rely on the teaching, guidance and supervision of a private tutor, the circumstantial impetus for them to develop some degree of learning self-reliance was reduced.

Consequently, after reviewing the SDLRS mean score differentials that this study found to be statistically significant, one would have expected that the most important of these differentials would have been between the group of respondents who never received private tuition at all (PNSN) and those who received the help of one or more tutors throughout both their primary and secondary school education (PYSY). Surprisingly, however, it is between the PNSN group and those who attended private tuition in primary school only (PYSN) that the largest SDLRS mean score differential was found.

In that regard, Paris and Newman (1990) suggest that "students construct different 'theories of schooling' that influence their actions in school and set courses that affect a lifetime of learning habits and skills" (p.88). Rushton and Larkin (2001) concur, adding that the educational experiences of a child "plays a part in shaping a lifetime of learning habits" (p. 30). Therefore, attending private tuition during primary and secondary school arguably forms part of these educational experiences and contributes to shaping the learning habits of an individual into adulthood and throughout his life. However, Sammons, Mortimore, and Thomas (1993) discovered that the overall effects of primary school experiences were greater than those that an individual goes through during secondary school. As such, it is likely that an exposure to private tuition during primary school, the early years of a child's education, might have a long-lasting impact on the child's reliance on external help for learning.

Interestingly, the SDLRS mean score differential between those who attended private tuition during primary school only (PYSN) and those who attended private tuition during secondary school only (PNSY) was not found to be statistically significant. This suggests that an

exposure to private tuition, whether earlier (primary school) or later (secondary school), had similar effect on the readiness for learning self-direction of the survey respondents.

On the other hand, the SDLRS mean score differential between respondents who never attended private tuition (PNSN) and those who attended private tuition during secondary school only (PNSY) was found to be marginally significant. This might, again, indicate that the long-term impact of the private tuition received during primary school has a clearer influence of the respondents' readiness for learning self-direction, one of many learning habits, than does the private tuition received during secondary school only.

SDLRS Score and Organisational Level

The third and last question of this research sought to examine the existence and nature of the relationship, among working adult Singaporean learners, between the organisational level of the position that they achieved at work and their readiness for learning self-direction, as measured by their SDLRS score.

Overall, a significant relationship between SDLRS and the organisational level occupied at work was found between, on the one hand, those occupying an entry-level position and their immediate supervisors who hold a position at the first managerial level and, on the other hand, between those occupying an entry-level position and respondents occupying positions at the third and higher managerial levels in their organisation.

Furthermore, a significant difference could be established between the SDLRS mean scores of those occupying an entry-level, non-managerial position and those occupying a managerial position at any level. This is aligned with the conclusions of a prior study (Durr & al., 1996) conducted at one major electronics manufacturing company that found that their managers' SDLRS mean scores were significantly higher than that of non-managers.

As it was related to employment status, an aspect covered by the third question, this research also compared the SDLRS mean score differences between the respondents who were self-employed (self-employed group) and those who were employed by an organisation (employee group), including, in the latter group, those engaged in an entry-level position as well as those occupying a position at any managerial level. The self-employed group achieved an SDLRS mean score of 220.12 while the employee group achieved an SDLRS mean score of 206.57, a 13.55 SDLRS mean score difference that, statistically, was found to be significant.

This finding is not surprising as self-employed individuals are sometimes freelancers who, by choice or by force, must be learning self-directed not just to maintain and expand the expertise that they offer to their customers, but also to identify and acquire the additional knowledge and skills that they require to better manage, for instance, their time, their resources as well as their finances and customer relationships.

The self-employed might also be entrepreneurs and (small) business owners who can count on a number of employees to support their venture by making programmed (i.e. routine) decisions that fall within their knowledge domain and area of expertise. However, these entrepreneurs must also continuously learn in order to effectively make the other, non-programmed decisions, choosing one of the right alternatives to appropriately respond to situations that the entrepreneur has not encountered in the past (Lim, Chua, Skultkerewathana, & Daft, 2015).

In comparison, thanks to division of labour and work specialization, employees working in structured organisations tend to have more defined roles and need not necessarily learn on their own. On and/or off-the-job training is often planned and provided by their immediate supervisor, the human resource department or both. Although there are variations in the level of independence given to each job or job holders, employees can usually rely on the immediate or close assistance of their supervisor, if not that of their peers, when facing unexpected issues that they do not know

how to resolve. As such, the need to identify one's learning gaps and to do something about them is less pressing when the solution, and the authority given to implement it, rest with the immediate supervisor.

However, as there were only 25 self-employed respondents in this research, no statistically significant difference could be established between the SDLRS mean score that the latter obtained and that of those who declared working for an organization. Hence, to be truly conclusive, the more pronounced readiness for learning self-direction shown by the self-employed in this study would warrant further investigation involving a larger sample size.

Chapter VI – CONCLUSION & RECOMMENDATIONS

This study sought to examine self-directed learning readiness among working adult Singaporean learners and to study the relationship between self-directed learning readiness and two key constructs: the respondents' prior exposure to private tuition and the organisational level of the position that they have reached at work.

This study has reached three main conclusions:

1. When compared to other adults worldwide, working adult Singaporean learners in this study were found to be below-average self-directed learners. However, using Guglielmino's classification, an almost identical percentage of them were average (42.1%), or below average self-directed learners (41%).
2. For working adult Singaporeans, a prior exposure to private tuition in primary and secondary school is negatively correlated to their readiness for learning self-direction. For private tuition attended only during secondary school however, that relationship was found to be only marginally significant.
3. The organisational level that working adult Singaporeans achieved at work is positively correlated to their self-directed learning readiness, but only for two groups: employees holding entry-level positions compared to those holding a 1st managerial level position or compared to those holding 3rd and higher managerial positions. Furthermore, the SDLRS mean score difference between managers and non-managers was also found to be significant.

This last section will now discuss the significance of these findings for distance education research and the implications that they have on both Singapore's national education and the participating institution. It will then suggest a number of recommendations that the latter might want to implement not only to better serve its student population as it expands its blended teaching

and learning model to more courses and programmes but also to meet the needs of the public at large who might sign up for one or more of its modular courses, offered under the SkillsFuture, one of Singapore's national lifelong learning initiatives. A short review of the limitations inherent to this research will then conclude this section.

Research Finding Significance and Implications

From its data analysis and findings, this study first concluded that with a 207 SDLRS mean score, working adult Singaporean learners fall below the international SDLRS mean score of 214 achieved by adult learners and computed from a variety of studies compiled by Guglielmino and Guglielmino (2017).

Furthermore, when examining the SDLRS score distribution of those surveyed in this study, it appears that an almost equal percentage of working adult Singaporean learners fell into the average self-directed learner category (42.1%) or below average self-directed learner category (41.0%).

Many factors could explain the average and below-average performance of working adult Singaporeans on readiness for learning self-direction. As discussed earlier, it seems clear that some of these factors are cultural, such as the widespread Confucianist values that place the teacher in charge and at the epicentre of the students' learning experience, leaving little opportunities for the latter to develop learning independence and devise individual learning initiatives.

Besides culture, there are other factors that could possibly explain the working adult Singaporeans' below-average performance on the SDLRS. One of them might very well stem from the international accolades that young Singaporeans continue to achieve in international standardised tests. Such repeated successes might encourage the various stakeholders of the country's educational landscape to maintain a pragmatic perspective that encourages the status quo: why change a teacher-centric education that has been so successful? In other words, while

they find the benefits of learning independence and self-direction attractive, the Singapore educators are also wary of changing too drastically what have been, so far, very effective pedagogical methods.

Hence, these findings have important implications for the participating institution's blended and fully online teaching and learning delivery strategy and implementation as well as for the primary, secondary, and tertiary educational strategy of the country as a whole.

Implications for the Institution.

At the institutional level, the findings of this study are useful to the participating university not only because it is in the process of widening the implementation of its blended teaching and learning model but also because it has already begun the presentation of fully-online courses.

As previously discussed, SDL is a critical trait for learners involved in various forms of distance education (Long, 1998; Song & Hill, 2007). Past research even suggests that students do need a high-level of readiness for self-directed learning to succeed in an online learning environment (Shapley, 2000; Song & Hill, 2007). Given the below-average SDLRS mean score achieved by an important proportion of the respondents of this study, the participating institution might need to first review the features of its blended delivery model and, eventually, adapt them to better meet the current state of readiness for learning self-direction of its student population.

Ideally, this would take a two-step approach. Firstly, the participating institution could consider modifying its current blended teaching and learning model so as to reduce the anxiety of a significant proportion of its current student population whose level of learning self-direction might be insufficient to successfully cope with the university's current course delivery approach. Assuming that the institution would be receptive to such changes, one would then need to suggest some new or different course delivery features that could then be considered.

As previously discussed, the SDLRS mean score of the respondents in this study places them slightly below the average category defined by Guglielmino's classification. Relying on Grow's SSDL model covered in the literature review (Grow, 1991), this suggests that overall, the study respondents are neither dependent nor self-directed but instead, they would likely considered to be interested or involved students. For the former group of interested students, Grow suggests that the most effective teaching-learning delivery model would involve the provision of inspiring lectures that are combined with lecturer-guided discussions. In addition, the instructor should help the students set their own learning goals and develop their own learning strategies. As for the latter group of involved students i.e. those who are average self-directed learners, Grow believes that they would gain more benefits from attending seminars, being involved in group projects and from actively participating in lecturer-facilitated discussions.

Interestingly, the blended course delivery model of the participating institution matches almost exactly these last features: each blended course currently offers, among other features, three face-to-face seminars where lecturer-facilitated discussions are predominant and group-based assessments where students must collaborate to prepare and submit a single report representing their team's effort.

On the other hand, while the university is following Grow's SSDL model and apparently provides the appropriate course delivery approach for students who are deemed involved, the same blended teaching and learning approach does not appear to be entirely suitable for the interested students whose level of learning self-direction is lower.

It is clear that meeting the needs of this second group of students would require a significant modification to the institution's teaching and learning model where the small number of 10-minute long, video-recorded Powerpoint-narrated presentations that students can stream to their devices do not arguably meet the criteria of inspiring lectures. Called chunked lectures, this asynchronous,

one-way teaching delivery would need to be replaced or at least supplemented by a larger number of longer, face-to-face lectures where the knowledge but, more importantly, the personality, presentation skills and enthusiasm of the instructors would more likely inspire the students.

Alternatively, in order not to penalise students whose propensity for learning self-direction is low while, at the same time, providing them with opportunities to improve on the latter, the institution could offer them the option to attend courses presented either through the more traditional, face-to-face delivery model described above or presented under the existing blended learning model. This would, obviously, require a significant investment in classroom resources, instructors' training and development as well as part and full-time faculty teaching time and salaries.

Even if a commitment to these additional resources were not an obstacle, it is possible, if not likely that, since its current course delivery model has already been implemented for more than 5 years, the participating institution might be reluctant to effect the changes suggested because such a policy might be perceived as moving away from MOE's stated goal of transforming Singaporeans into self-directed learners, as will be explained later.

For these reasons, the institution could, instead, continue to offer its current blended teaching and learning model to all students but in order to cater to the needs of the interested students, it could also provide teaching and learning support aimed at fostering learning self-direction.

Such support could take many forms. For instance, the university could offer a compulsory course that all its students would take in the first semester of their programme of study. Such a course would not just teach self-directed learning skills but also have a deliberately strong focus on their benefits so as to motivate the students to persevere in their self-directed learning efforts,

not just for the more immediate purpose of completing their programme of study but also for developing skills that might help advance their career.

The institution could also provide a series of training courses to its teaching faculty so that they do not just learn about SDLR for themselves but that they are also given specific guidance to help them encourage the continuous development of self-directed learning skills among their students. This would ensure a certain continuity and coherence in the university's efforts to promote self-direction learning skills beyond the introductory course taken early in the students' programme of study.

The substantive content of these initiatives would directly relate to what self-directed traits and skills are: independence, self-management, desire for learning, and problem-solving (Chou & Chen, 2008). To promote learning independence for instance, Gibbons (2002) suggests teaching students how to set their own learning goals and, eventually, how to choose the courses that they will study. This is directly relevant and applicable to the students enrolled at the university because, at some point in time, they generally need to choose courses among a list of electives offered in their respective programme of study. To help student develop self-management skills, Gibbons further suggests teaching students how to make plans and initiate actions to carry them out. Finally, to nurture the global emergence of self-directed traits and skills, he proposes that the instructors guide their students through self-directed challenge activities.

Besides adopting a skills perspective when promoting SDLR, the university could instead, or concurrently, take a process approach to achieving appropriate levels of learning self-direction among its student population.

As discussed in the literature review, there are generally two main conceptualisations of self-directed learning. The first conceptualisation, adopted and measured by this study, relates to SDLR as a set of personality traits and learning preferences. The second one takes a process-

oriented perspective where SDLR is achieved through a series of steps that the learner takes. While the institution can try to create, develop and nurture self-directed learning personality traits among its students, it could also provide them with a structure and guide them through the self-directed learning process, eventually leading them to the same benefits. By injecting the SDLR process into its course design, delivery and assessment, the university would provide a consistent support and structure for its students who might eventually develop personal traits and learning preferences for learning self-direction because they would repeatedly go through the SDLR process over the many courses of their programme of studies.

Implications for Singapore's National Education Strategy.

Besides their potential impact on the institution, the findings of this study also have important implications for Singapore's primary, secondary, and tertiary educational strategy as a whole.

In its Framework for 21st Century Competencies and Student Outcomes last updated in 2009 (Singapore Ministry of Education, 2016), Singapore's Ministry of Education (MOE) has made a formal commitment to develop Singaporeans students into self-directed learners. In that respect, it has specifically identified self-directed learning as one of the four student outcomes of that framework (Figure 6.1).

While it is too early for the MOE to assess the results of the initiatives that have been implemented to promote self-directed learning readiness in the nation's primary and secondary schools as well as in junior colleges, the findings of this study could serve as a benchmark that can be used when MOE eventually makes this assessment. In other words, MOE should, over the years, examine the SDLRS mean scores achieved at different education levels and after comparing them with those achieved by the respondents of this study (and of subsequent ones, if any), it could draw

some conclusions about the effectiveness of its initiatives to promote the development of readiness for learning self-directed attributes among Singaporeans learners.

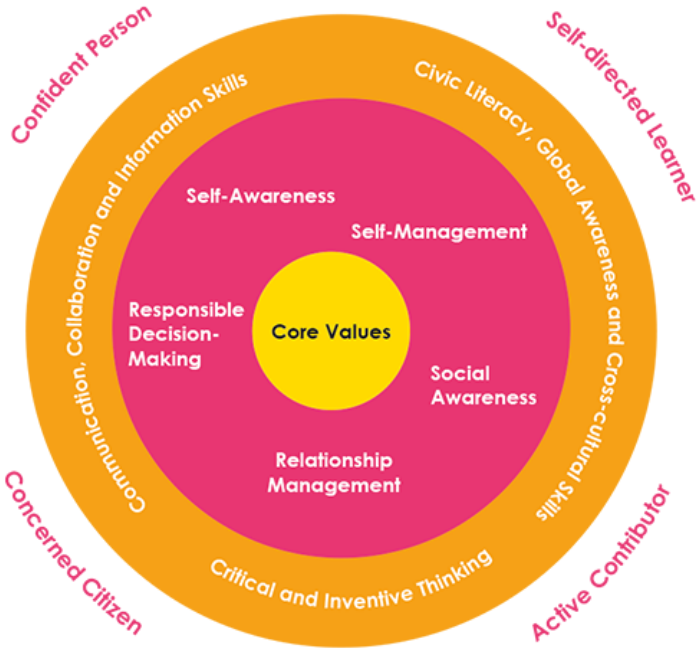

Figure 6.1. Singapore's Framework for 21st Century Competencies and Student Outcomes

While the first finding of this study naturally leads to discussing a number of initiatives that could be implemented to improve the students learning self-direction at the institutional and national levels, the last two findings should help the institution identify for whom these initiatives would be more beneficial, specifically the at-risk freshmen who, because of their low level of learning self-direction, are more likely to struggle with the university's current blended teaching and learning model.

There are a few approaches that the university could take to promote learning self-direction. It could first decide not to try to identify at-risk students at all and make no assumptions about any applicant's level of learning self-direction. In such a situation, the institution could require all new students to take a course teaching the process and highlighting the benefits of self-directed learning. As the institution currently requires all students to complete a small number of compulsory and

elective university core courses regardless of the academic discipline that they chose, the addition of a self-directed learning course would fit nicely within the students' programme curricula.

If, instead of taking a blanket approach, the university preferred to focus its attention on those who truly need better learning self-direction, it could require all new students to complete the SDLRS questionnaire and then use their individual SDLRS score to determine whether an SDLRS course should be one of the compulsory university core courses that they would be required to successfully complete within the first or second semester of the programme of study.

While the above two approaches would be more systematic, they would also be relatively costly for the institution to implement, considering not just the per-student cost of the SDLRS questionnaire but also the various internal processes needed to administer it. For this reason, the university could instead consider using the findings of this study to identify the new students who are more likely to struggle with its blended learning model. Under this option, it could, for instance, add to its admission form a few questions pertaining to the applicants' prior exposure to private tuition and the managerial level that they occupy within their current organisation. Depending on the answers given, the university could then decide to impose or simply suggest that the applicant, upon admission, take the SDLRS course that the university would have developed for that purpose.

The findings of this research could also reach beyond the institution or the education sector as a whole. In Singapore, they could also be useful for the design and delivery of courses that the university contributes to nationwide academic and training programmes such as the recent SkillsFuture initiative launched by the government on the 1st January 2016. This initiative has four key thrusts ("SkillsFuture", 2017a):

1. Help individuals make well-informed choices in education, training and careers
2. Develop an integrated system of education and training that responds to constantly evolving needs

3. Promote employer recognition and career development based on skills and mastery and
4. Foster a culture that supports and celebrates lifelong learning.

To date, the SkillsFuture initiative recognises 10,000 online, blended and face-to-face academic and training courses offered and delivered by tertiary academic institutions, training institutes and even online course providers such as Coursera. Every year, Singaporeans will receive a $500 SkillsFuture credit that they can use to pay for these courses (Chew, 2016).

By aiming "to empower each Singaporean to chart their own journey in life, and gain fulfilment at work, and even in their senior years" (Budget Speech - Developing Our People, 2015), this initiative not only recognises individual training needs but also gives Singaporeans a certain degree of control over their learning goals, one of the defining characteristic of self-directed learning.

As a direct consequence of its active involvement with this nationwide training effort, the university must therefore ensure that its skills-based modular courses that are recognised by the SkillsFuture initiative are delivered in a manner that is accessible to members of the public at large i.e. without assuming that they have any degree of learning self-direction. In that pursuit, the university could limit the portfolio of modular courses it offers under that initiative to those that are currently or that can be modified to be delivered in a more traditional fashion. Alternatively, or in addition, it could use a course application process similar to the admission form-driven filtering system discussed earlier to tailor the list of courses that applicants can take according to their prior exposure to private tuition and/or the managerial or non-managerial level of the position that they occupy at work.

Three main reasons dictated the focus on self-directed learning that the three questions of this study examined. Firstly, answering them would possibly serve the academic institution that

provided access to the respondents who participated in this research. Secondly, its findings could be useful in the design and implementation of Singapore's national education and training programmes and strategies, as this conclusion explained earlier. Lastly but as importantly, for knowledge-based economies where lifelong learning is critical, self-directed learning is generally considered to be an assumption, if not a requirement for the success of lifelong learning initiatives, including the World Initiative on Lifelong Learning (Longworth, 2015), a shared initiative involving national and multinational businesses, professional associations, education specialists, and international organisations like the UNESCO and the OECD (Bolhuis, 2003; Longworth, 2015; Jakobi, 2009). Hopefully, the findings of this study can contribute positively to the institutional, national, and international efforts dedicated to helping individuals keep up with the changing labour market demand for specialised knowledge and remain relevant in increasingly challenging times.

These findings have strong implications for organizations seeking to develop the spirit of entrepreneurship and initiative and encourage high performance in their workforces and for countries that are seeking to improve their economic indicators. It is apparent that self-directed learning is now increasingly critical in the workplace, both for the individuals in the workforce and for the organizations as a whole. Educational institutions and HRD units share a responsibility to incorporate opportunities to enhance skills and attitudes supportive of SDL in each learning activity in order to assist learners and workers to function effectively in the 21st century."

Research Limitations

This research analysed the survey responses of working adult students enrolled in part-time degree courses offered by a Singapore-based university. The generalizability of the study findings might therefore be affected by a number of factors.

Firstly, the convenience sampling method that was adopted did attract a significant number of individuals who were willing to participate and were hence more likely to complete the survey questionnaire. However, because it is non-probabilistic, this sampling method limits the generalizability of the study findings to the larger population of interest defined in this research.

Secondly, the demographic characteristics of the research sample are partially dictated by the admission criteria imposed by the participating institution (working adults, Singaporeans, 21-year old and above, diploma holders or equivalent, with two-years of working experience or working at the time of admission). These same criteria effectively limit the applicability of the study findings to other institutions with a different student population profile, particularly those who have no work experience such as individuals who, immediately after secondary school, are able to pursue undergraduate degree studies before entering the workforce.

Thirdly, as the research focused exclusively on courses offered to undergraduate students during their first and second semester of enrolment at the institution, its findings cannot readily be extended, without qualification, to students who are further ahead in their programme of study in a blended learning environment that, by design if not by intent, expects them to be more learning self-directed. As such, the study findings might not be generalizable to students enrolled in higher-level courses that are normally taken in later semesters.

Fourthly, the sample has been found not to be entirely representative of the population of interest, the external validity of the research findings is low and the latter cannot be generalised to apply to all the working adult students enrolled in a part-time undergraduate degree programme offered by the School of Business and the School of Social Services at the participating institution, the population of interest defined in this research.

Fifthly, the findings on the relationship between SDLRS and organisational level attained must be read with the understanding that the level that the respondents have reached in their

organisation at the time that they were surveyed might not be the final one that they will achieve in their working life. In other words, it is likely that besides SDLR, there are other factors, such as seniority and work performance, that also influence the organisational level that individuals reach throughout their career. An analysis of these possible factors could be the focus on future research.

This research sought to evaluate the working adult Singaporeans' readiness for learning self-direction and to determine the possible relationship that it could have, on the one hand, with their prior exposure to private tuition and, on the other hand, with the organisational level that they occupy at their workplace.

The study findings should not only help to shed some light on these relationships but also trigger a reflection on the adequacy between the teaching and learning model adopted by the participating institution and the needs and profile of the working adults that it aims to serve.

At the national level, it could not only encourage a reflection on the role that private tuition really plays in the country's educational landscape but it could also help to initiate a fruitful discussion of the impact that private tuition truly has on the ability of Singapore's primary, secondary and tertiary education institutions to achieve the educational outcome set by Ministry of Education, that of transforming Singaporeans into self-directed learners.

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APPENDIX A – Survey on Learning Preferences & Attitudes of Working Adult Singaporeans

IF YOU HAVE ALREADY PARTICIPATED IN THIS SURVEY, LEAVE THIS QUESTIONNAIRE BLANK AND KINDLY RETURN IT TO YOUR INSTRUCTOR BEFORE THE END OF THIS SESSION.

About the Survey

- This survey gathers information about the educational and professional backgrounds as well as the learning preferences and attitudes of working adult Singaporeans.
- Your participation is important as the survey findings will help the Singapore Republic University design and offer effective supporting activities aimed at improving your learning experience.

Your Participation in This Survey is Voluntary and Anonymous

- Your participation in this survey is entirely voluntary. You can decide to participate, not to participate or to stop your participation at any time when answering this survey.
- Your participation is also completely anonymous: there are no questions in this survey that can identify you personally. Furthermore, no list of participants or non-participants is maintained or will ever be created.
- The principal investigator of this research and his collaborators do not supervise or teach your course nor do they mark, grade, monitor or otherwise assess any assignments relating to that course.
- Save for distributing and collecting the survey questionnaires, your instructor is not involved in any other aspect of this research. Furthermore, s/he has no direct or indirect interest in and s/he will derive no direct or indirect benefit from your decision to participate or not to participate in the survey.
- If you decide not to participate, kindly return this questionnaire along with this two-page cover page to the instructor any time before the end of this face-to-face session.
- If you decide to participate, kindly follow the instructions below.

Instructions for Survey Participants

- Use a black, blue, green or red pen to answer the **four (4) parts** of this survey questionnaire:

Part I: Collects information about your learning preferences and attitudes towards learning.

Part II: Collects education-related information.

Part III: Collects work-related information.

Part IV: Collects socio-demographic information.

- You should try to answer all the questions in each of the four sections of the survey. However, should you decide not to answer or to skip any one or more questions, your status as a participant remains unchanged and the rest of the survey questions that you did answer will remain part of the data collected for the purpose of this study and will be analysed along the data collected from the other participants to this study.
- You must answer this questionnaire by yourself and not seek the advice or input from anyone else.
- Unless otherwise mentioned, provide one (1) and only one answer for each question.
- It should take you no more than 20 minutes to complete the survey.
- Please, DO NOT detach any page(s) from the survey questionnaire, including this cover page.
- Before the end of this face-to-face session, kindly return to the instructor the survey questionnaire along with this 2-page cover page. You must return the questionnaire to the instructor, whether it is completed, not completed or only partially completed.

Stopping / Cancelling Your Participation

- You may decide to stop participating in this study at any point while answering the survey questionnaire, up until the moment that you have returned the fully or partially completed survey questionnaire to the instructor. After that point, as your survey questionnaire is entirely anonymous and will have been placed in a pile with the anonymous survey questionnaires returned by the other participants, it will no longer be possible to retrieve it nor to remove it from the study.
- To indicate that you no longer wish to participate in the survey, simply draw a large "X" across page 1 of the survey questionnaire (page numbers are indicated at the bottom of the survey questionnaire). However, you still need to return the cancelled survey questionnaire to the instructor.

QUESTIONS AND QUERIES ABOUT THE SURVEY PURPOSE

If, after it has been administered, you have any question regarding this survey, you can contact the principal investigator, his supervisor or the research ethics board of Athabasca University, the supervising institution:

Principal Investigator	Supervisor of Principal Investigator	Athabasca University Research Ethics Board
Mr. Gabriel Gervais Senior Lecturer Singapore Republic University	Dr. Martha Cleveland-Innes Professor and Chair Centre for Distance Education Athabasca University martic@athabascau.ca 1-780-788-9041, ext. 6426	Athabasca Research Ethics Board Secretariat: rebsec@athabascau.ca Tel: +1-780-675-6718

Thank you.

The Survey Questionnaire Starts on The Next Page

PART I - LEARNING PREFERENCES AND ATTITUDES

Instructions: The first part of this survey asks questions designed to gather information on your learning preferences and attitudes towards learning. After carefully reading each item, please indicate the degree to which you feel that statement is true to you. Circle the number of the response that best describes your feeling.

There is no time limit for the questionnaire. Try not to spend too much time on any one item. Your first reaction to the question will usually be the most accurate.

		Almost never true of me: I hardly ever feel this way.	Not often true of me: I feel this way less than half the time.	Sometimes true of me: I feel this way about half the time.	Usually true of me: I feel this way more than half the time	Almost always true of me: There are very few times when I don't feel this way.
1.	I'm looking forward to learning as long as I am living	1	2	3	4	5
2.	I know what I want to learn	1	2	3	4	5
3.	When I see something that I don't understand, I stay away from it.	1	2	3	4	5
4.	If there is something I want to learn, I can figure out a way to learn it.	1	2	3	4	5
5.	I love to learn.	1	2	3	4	5
6.	It takes me a while to get started on new projects.	1	2	3	4	5
7.	In a classroom, I expect the instructor to tell all class members exactly what to do at all times.	1	2	3	4	5
8.	I believe that thinking about who you are, where you are, and where you are going should be a major part of every person's education.	1	2	3	4	5
9.	I don't work very well on my own.	1	2	3	4	5
10.	If I discover a need for information that I don't have, I know where to go to get it.	1	2	3	4	5

		Almost never true of me: I hardly ever feel this way.	Not often true of me: I feel this way less than half the time.	Sometimes true of me: I feel this way about half the time.	Usually true of me: I feel this way more than half the time	Almost always true of me: There are very few times when I don't feel this way.
11.	I can learn things on my own better than most people.	1	2	3	4	5
12.	Even if I have a great idea, I can't seem to develop a plan for making it work.	1	2	3	4	5
13.	In a learning experience, I prefer to take part in deciding what will be learned and how.	1	2	3	4	5
14.	Difficult study doesn't bother me if I'm interested in something.	1	2	3	4	5
15.	No one but me is truly responsible for what I learn.	1	2	3	4	5
16.	I can tell whether I'm learning something well or not.	1	2	3	4	5
17.	There are so many things I want to learn that I wish there were more hours in a day.	1	2	3	4	5
18.	If there is something I have decided to learn, I can find time for it, no matter how busy I am.	1	2	3	4	5
19.	Understanding what I read is a problem for me.	1	2	3	4	5
20.	If I don't learn, it's not my fault.	1	2	3	4	5
21.	I know when I need to learn more about something.	1	2	3	4	5
22.	If I can understand something well enough to get a good grade on a test, it doesn't bother me if I still have questions about it.	1	2	3	4	5
23.	I think libraries are boring places.	1	2	3	4	5

		Almost never true of me: I hardly ever feel this way.	Not often true of me: I feel this way less than half the time.	Sometimes true of me: I feel this way about half the time.	Usually true of me: I feel this way more than half the time	Almost always true of me: There are very few times when I don't feel this way.
24.	The people I admire most are always learning new things.	1	2	3	4	5
25.	I can think of many different ways to learn about a new topic.	1	2	3	4	5
26.	I try to relate what I am learning to my long-term goals.	1	2	3	4	5
27.	I am capable of learning for myself almost anything I might need to know.	1	2	3	4	5
28.	I really enjoy tracking down the answer to a question.	1	2	3	4	5
29.	I don't like dealing with questions where there is not one right answer.	1	2	3	4	5
30.	I have a lot of curiosity about things.	1	2	3	4	5
31.	I'll be glad when I'm finished learning.	1	2	3	4	5
32.	I'm not as interested in learning as some other people seem to be.	1	2	3	4	5
33.	I don't have any problems with basic study skills.	1	2	3	4	5
34.	I like to try new things, even if I'm not sure how they will turn out.	1	2	3	4	5
35.	I don't like it when people who really know what they're doing point out mistakes that I am making.	1	2	3	4	5
36.	I'm good at thinking of unusual ways to do things.	1	2	3	4	5
		Almost never true of me:	Not often true of me:	Sometimes true of me:	Usually true of me:	Almost always true of me:

		I hardly ever feel this way.	I feel this way less than half the time.	I feel this way about half the time.	I feel this way more than half the time	There are very few times when I don't feel this way.
37.	I like to think about the future.	1	2	3	4	5
38.	I'm better than most people are at trying to find out the things I need to know.	1	2	3	4	5
39.	I think of problems as challenges, not stop- signs.	1	2	3	4	5
40.	I can make myself do what I think I should.	1	2	3	4	5
41.	I'm happy with the way I investigate problems.	1	2	3	4	5
42.	I become a leader in group learning situations.	1	2	3	4	5
43.	I enjoy discussing ideas.	1	2	3	4	5
44.	I don't like challenging learning situations.	1	2	3	4	5
45.	I have a strong desire to learn new things.	1	2	3	4	5
46.	The more I learn, the more exciting the world becomes.	1	2	3	4	5
47.	Learning is fun.	1	2	3	4	5
48.	It's better to stick with the learning methods that we know will work instead of always trying new ones.	1	2	3	4	5
49.	I want to learn more so that I can keep growing as a person.	1	2	3	4	5
50.	I am responsible for my learning - no one else is.	1	2	3	4	5
51.	Learning how to learn is important to me.	1	2	3	4	5
52.	I will never be too old to learn new things.	1	2	3	4	5

		Almost never true of me:	Not often true of me:	Sometimes true of me:	Usually true of me:	Almost always true of me:

		I hardly ever feel this way.	I feel this way less than half the time.	I feel this way about half the time.	I feel this way more than half the time	There are very few times when I don't feel this way.
53.	Constant learning is a bore.	1	2	3	4	5
54.	Learning is a tool for life.	1	2	3	4	5
55.	I learn several new things on my own each year.	1	2	3	4	5
56.	Learning doesn't make any difference in my life.	1	2	3	4	5
57.	I am an effective learner in a classroom situation and on my own.	1	2	3	4	5
58.	Learners are leaders.	1	2	3	4	5

(Go To The Next Page For Part II)

PART II – EDUCATION-RELATED INFORMATION

Instructions: Put a tick " √ " or a cross "X" in the box that best reflects your answer.

A. PRIMARY SCHOOL EDUCATION

1. Where have you received your PRIMARY school education?

Only in Singapore	Mostly in Singapore	Equally in Singapore and outside of Singapore	Mostly outside of Singapore	Only outside of Singapore

2. During your PRIMARY school education, the subjects that you learnt in school were taught:

Only face-to-face	Mostly face-to-face	Equally face-to-face and online	Mostly online	Only online

3. During your PRIMARY school, did you receive any private tuition?

	Yes
	No. Skip questions 4 to 7 and go directly to question 8 (next page).

4. During your PRIMARY school, where did you receive private tuition?

Only at home	Mostly at home	Equally at home and at tuition centres	Mostly at tuition centres	Only at tuition centres

5. Combining all your PRIMARY school subjects, how often, in an average week, did you receive private tuition?

☐ Less than once a week

_____ times/week.

6. Combining all your PRIMARY school subjects, how many hours of private tuition did you receive in an average week?

☐ Less than 1 hour per week

_____ hours/week.

7. During your PRIMARY school, during which period(s) of the year did you usually receive private tuition?

>>> For this question, you may tick " √ " more than one choice, if applicable.

☐ Just before the exams period
☐ During the exams period
☐ During normal school period (outside exams period)
☐ During school holidays
☐ At other times (please specify):

_____

8. Following the example below and considering only your PRIMARY school education, rank from 1 to 3 the learning situations in which…:

Ex:		Learning Situations		
		Learning Through Private Tuition	**Learning Through Classroom-Based Teaching**	**Learning On My Own**
a)	...you felt you learnt faster.	*(Circle only one number)* (1) 2 3 Faster ◄——► Slower ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 (3) Faster ◄——► Slower	*(Circle only one number)* 1 (2) 3 Faster ◄——► Slower

		Learning Situations		
		Learning Through Private Tuition	Learning Through Classroom-Based Teaching	Learning On My Own
a)	…you felt you learnt <u>faster</u>.	*(Circle only one number)* 1 2 3 Faster ◄——► Slower ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 3 Faster ◄——► Slower	*(Circle only one number)* 1 2 3 Faster ◄——► Slower
b)	…you felt your learning was <u>easier</u>.	*(Circle only one number)* 1 2 3 Easier ◄——► Harder ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 3 Easier ◄——► Harder	*(Circle only one number)* 1 2 3 Easier ◄——► Harder
c)	…you felt your learning was <u>more enjoyable</u>.	*(Circle only one number)* 1 2 3 More Enjoyable ◄——► Less Enjoyable ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 3 More Enjoyable Less Enjoyable	*(Circle only one number)* 1 2 3 More Enjoyable Less Enjoyable
d)	…you felt your learning was <u>more effective</u>.	*(Circle only one number)* 1 2 3 More Effective ◄——► Less Effective ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 3 More Effective ◄——► Less Effective	*(Circle only one number)* 1 2 3 More Effective ◄——► Less Effective
e)	…you <u>preferred learning</u>, overall.	*(Circle only one number)* 1 2 3 Most Preferred ◄——► Least Preferred ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 3 Most Preferred ◄——► Least Preferred	*(Circle only one number)* 1 2 3 Most Preferred ◄——► Least Preferred

9. Considering only your PRIMARY school education, briefly explain why you preferred the learning situation you ranked as "1" in your answer to Q. 8 e) above.

B. SECONDARY SCHOOL EDUCATION

10. Where have you received your SECONDARY school education?

Only in Singapore	Mostly in Singapore	Equally in Singapore and outside of Singapore	Mostly outside of Singapore	Only outside of Singapore

11. During your SECONDARY school education, the subjects that you learnt in school were taught:

Only face-to-face	Mostly face-to-face	Equally face-to-face and online	Mostly online	Only online

12. During your SECONDARY school education, did you receive any private tuition?

☐ Yes

☐ No. Skip questions 13 to 16 and go directly to question 17 (next page).

13. During your SECONDARY school, where did you receive private tuition?

Only at home	Mostly at home	Equally at home and at tuition centres	Mostly at tuition centres	Only at tuition centres

14. Combining all your SECONDARY school subjects, how often, in an average week, did you receive private tuition?

☐ Less than once a week

_____ times/week.

15. Combining all your SECONDARY school subjects, how many hours of private tuitions did you receive in an average week?

☐ Less than 1 hour per week

_____ hours/week.

16. During your SECONDARY school, during which period(s) of the year did you usually receive private tuition?

You may tick " √ " or cross " X " more than one choice, if applicable.

☐ Just before the exams period
☐ During the exams period
☐ During normal school period (outside exams period)
☐ During school holidays
☐ At other times (please specify):

_____

17. Following the example below and considering only your SECONDARY school education, rank from 1 to 3 the learning situations in which…:

Ex:		Learning Situations		
		Learning Through Private Tuition	**Learning Through Classroom-Based Teaching**	**Learning On My Own**
a)	...you felt you learnt faster.	*(Circle only one number)* (1) 2 3 Faster ◄——► Slower ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 (3) Faster ◄——► Slower	*(Circle only one number)* 1 (2) 3 Faster ◄——► Slower

	Learning Situations		
	Learning Through Private Tuition	Learning Through Classroom-Based Teaching	Learning On My Own

a)	…you felt you learnt <u>faster</u>.	*(Circle only one number)* 1 2 3 Faster ◄——► Slower ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 3 Faster ◄——► Slower	*(Circle only one number)* 1 2 3 Faster ◄——► Slower
b)	…you felt your learning was <u>easier</u>.	*(Circle only one number)* 1 2 3 Easier ◄——► Harder ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 3 Easier ◄——► Harder	*(Circle only one number)* 1 2 3 Easier ◄——► Harder
c)	…you felt your learning was <u>more enjoyable</u>.	*(Circle only one number)* 1 2 3 More Enjoyable ◄——► Less Enjoyable ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 3 More Enjoyable Less Enjoyable	*(Circle only one number)* 1 2 3 More Enjoyable Less Enjoyable
d)	…you felt your learning was <u>more effective</u>.	*(Circle only one number)* 1 2 3 More Effective ◄——► Less Effective ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 3 More Effective ◄——► Less Effective	*(Circle only one number)* 1 2 3 More Effective ◄——► Less Effective
e)	…you <u>preferred learning</u>, overall.	*(Circle only one number)* 1 2 3 Most Preferred ◄——► Least Preferred ☐ Not applicable: I did not have private tuition at all during my primary school.	*(Circle only one number)* 1 2 3 Most Preferred ◄——► Least Preferred	*(Circle only one number)* 1 2 3 Most Preferred ◄——► Least Preferred

18. Considering only your SECONDARY school education, briefly explain why you preferred the learning situation you ranked as "1" in your answer to Q.17 e) above?

C. POST-SECONDARY SCHOOL EDUCATION

19. What is the highest educational qualification that you have earned before starting your programme of study at Singapore Republic University?

- ☐ Polytechnic diploma or equivalent
- ☐ Two (2) GCE "A" levels or equivalent
- ☐ International Baccalaureate (IB) or equivalent
- ☐ Undergraduate degree (Bachelor's degree)
- ☐ Post-graduate degree (Master's degree, Doctorate or Ph.D.)
- ☐ Other: _____

20. After your secondary school education but prior to starting your current programme of study at Singapore Republic University, the courses that you took were taught:

only face-to-face	mostly face-to-face	equally face-to-face and online	mostly online	only online

21. Prior to starting your current programme of study at Singapore Republic University, when was the last time you took a course leading to a formal educational qualification [excluding training courses and workshops offered or delivered by your current or past employer(s)]?

- ☐ Less than 1 year ago
- ☐ Between 1 and 2 years ago
- ☐ Between 2 and 3 years ago
- ☐ Between 3 and 4 years ago
- ☐ More than 4 years ago

22. What is the name of the degree programme in which you are currently enrolled at Singapore Republic University? (If you cannot remember the exact name, mention the major discipline: business, finance, social work, general studies etc…)

_____

23. In which semester did you start the degree programme that you are currently taking at Singapore Republic University?

☐	January 2015	☐	July 2013
☐	July 2014	☐	Before July 2013 (specify semester & year below):
☐	January 2014		_____

24. Including the current semester (January 2015), in how many semesters have you taken one or more courses in your current degree programme at Singapore Republic University (do not count semesters when you did not take any course)?

_____ semesters.

25. How many courses of your current degree programme at Singapore Republic University have you successfully completed so far (excluding courses that you have failed, courses from which you have withdrawn and courses that you are taking this semester)?

I have successfully completed _____ courses so far.

☐ I have not completed any course yet.

PART III – WORK-RELATED INFORMATION

Instructions: Put a tick " √ " or a cross "X" in the box that best reflects your answer.

1. What is your current employment status?

☐ Employer (I employ at least one paid worker in my business or trade).

☐ Self-employed / Own account worker (I operate my own business without employing any paid workers in the conduct of my business or trade).

☐ Employee (I work for an employer in return for regular wages or salaries).

☐ Contributing family worker (I help in the operation of a family business without receiving regular wages or salaries).

☐ Unemployed and looking for work.

☐ Unemployed and not looking for work (retirees, housewives, etc.).

2. Which one of the following occupational categories best describes your current job or, if you are unemployed at the moment, the job you held at your last place of work?

☐	Legislators, Senior Officials and Managers (ex: high-level civil servants, managers in administrative, commercial, production, finance, marketing, HR, hospitality and related services and functions, etc…)
☐	Professionals (ex: physical and mental health professionals, information and communications technology professionals, counselors, educators, etc…)
☐	Associate Professionals and Technicians (ex: physical and mental health associates and information and communications technicians, police force, etc…)
☐	Clerical Support Workers (ex: receptionist, secretary, personal assistant, data entry clerk, stock, production, transport clerks etc…)
☐	Service and Sales Workers (ex: childcare worker, sales and accounts executive, shop assistant, etc…)
☐	Agricultural and Fishery Workers
☐	Craftsmen and Related Trades Workers
☐	Plant and Machine Operators and Assemblers
☐	Cleaners, Labourers and Related Workers
☐	Other (please specify): _____

3. What is the size of the organization where you are currently working or, if you are currently unemployed, the size of the organization where you last worked?

Approximately _____employees.

4. In which industry are you currently working or, if you are currently unemployed, in which industry were you working in your last job?

☐	Manufacturing	☐	Professional Services
☐	Construction	☐	Administrative & Support Services
☐	Wholesale & Retail Trade	☐	Public Administration & Education
☐	Transportation & Storage	☐	Health & Social Services
☐	Accommodation & Food Services	☐	Arts, Entertainment & Recreation
☐	Information & Communications	☐	Other Community, Social & Personal Services
☐	Financial & Insurance Services	☐	Other (Please specify below):
☐	Real Estate Services		_____

5. Prior to starting your current undergraduate degree programme at Singapore Republic University, how many years of full-time working experience did you accumulate? Male respondents should include the years of compulsory national service that they have actually served.

_____years of working experience.

6. How many managerial levels in total are there at your current place of work or, if you are currently unemployed, at the organization where you last worked?

☐ I am currently self-employed so managerial levels do not apply to my current work situation.

_____ managerial levels.

7. What is the managerial level of the job that you currently hold or, if you are currently unemployed, of the job that you held at your last place of work?

☐ I am currently self-employed so managerial levels do not apply to my work situation.

☐ I currently hold an entry-level, non-managerial position and no one is reporting to me.

☐ 1st managerial level: I am a first-level supervisor and the subordinates who directly report to me are all holding entry-level positions.

☐ 2nd managerial level: I hold a managerial position immediately above that of a first-level supervisor.

☐ 3rd managerial level: I hold a managerial position that is two levels above that of a first-level supervisor.

☐ 4th managerial level: I hold a managerial position that is three levels above that of a first-level supervisor.

☐ Higher than 4th managerial level: I hold a managerial position that is more than three levels above that of a first-level supervisor.

8. How long have you been working at the managerial level you reported in Q. 7 above or, if you are currently unemployed, at your last place of work?

_____ years

9. In the context of your work, indicate the extent to which you agree with each of the following statements:

		Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
a)	I prefer diagnosing my learning needs rather than letting my employer do it for me.					
b)	I prefer formulating my learning goals rather than letting my employer do it for me.					
c)	I prefer identifying the material and human resources that I need to learn rather than letting my employer do it for me.					
d)	I prefer choosing the strategies that are appropriate for me to learn rather than letting my employer do it for me.					
e)	I prefer evaluating whether I have achieved my learning outcomes rather than letting my employer do it for me.					
f)	I believe that taking charge of my own learning significantly improves my chances for promotion.					
g)	I believe that taking charge of my own learning has significantly contributed to reaching the organizational level I currently occupy at work.					

PART IV – SOCIO-DEMOGRAPHIC INFORMATION

Instructions: Put a tick " √ " or a cross "X" in the box that best reflects your answer.

1. What is your gender?

☐ Female
☐ Male

2. What is your age?

I am _____ years old.

3. What is your race?

- ☐ Chinese
- ☐ Malay
- ☐ Indian
- ☐ Other (Please specify below):

_____

4. What is your current marital status?

- ☐ Single
- ☐ Married
- ☐ Widowed
- ☐ Separated
- ☐ Divorced

5. What is your current monthly income (excluding your employer's CPF contribution, if any)?

$ _____ / month

6. What type of accommodation are you currently occupying?

- ☐ 1 or 2-Room HDB flat
- ☐ 3-Room HDB flat
- ☐ 4-Room HDB flat
- ☐ 5-Room HDB flat & Executive Condo
- ☐ Condo / Private apartment
- ☐ Landed Property

7. What is your status relative to the accommodation you are currently occupying?

- ☐ I am the owner
- ☐ I am renting the whole unit
- ☐ I am renting a room in the unit
- ☐ The unit is provided free by my employer
- ☐ The unit is provided free by someone other than my employer

---------- END OF SURVEY QUESTIONNAIRE ----------

THANK YOU FOR YOUR PARTICIPATION
BEFORE THE END OF THIS FACE-TO-FACE SESSION
KINDLY RETURN THIS QUESTIONNAIRE
TO YOUR COURSE INSTRUCTOR

APPENDIX B – 2015 AU-REB Certificate of Ethics Approval

Athabasca University
RESEARCH CENTRE

December 24, 2014

Mr. Gabriel Gervais
Other Academic Centres/Depts
Athabasca University

File No: 21634

Ethics Expiry Date: December 23, 2015

Dear Mr. Gabriel Gervais,

Thank you for your recent resubmission to the Centre for Distance Education Departmental Ethics Review Committee, addressing the clarifications and revisions as requested for your research entitled, 'Self-Directed Learning Readiness Among Working Adult Singaporeans: A Correlational Analysis'.

Your application has been **Approved** and this memorandum constitutes a ***Certification of Ethics Approval***. You may begin the research immediately.

This REB approval, dated December 24, 2014, is valid for one year less a day.

Throughout the duration of this REB approval, all requests for modifications, ethics approval renewals and serious adverse event reports must be submitted via the Research Portal.

To continue your proposed research beyond December 23, 2015, you must submit an Ethics Renewal Request Form before November 15, 2015.

When your research is concluded, you must submit a Project Completion (Final) Report Form to close out REB approval monitoring efforts.

At any time, you can login to the Research Portal to monitor the workflow status of your application.

If you encounter any issues when working in the Research Portal, please contact

the system administrator at research_portal@athabascau.ca.

Sincerely,

Pat Fahy
Chair, Centre for Distance Education Departmental Ethics Review Committee
Research Ethics Board

APPENDIX C – 2016 AU-REB Certificate of Ethics Approval

Athabasca University
RESEARCH CENTRE

December 11, 2015

Mr. Gabriel Gervais

Athabasca University

File No: 21634

Certification of Ethics Approval Date: December 24, 2014

New Renewal Date: December 23, 2016

Dear Gabriel Gervais,

Your Renewal Form and Modification Request have been received by the AU REB Office.

Athabasca University's Research Ethics Board (REB) has **approved** your request to renew the *certification of ethics approval* for a further year for your project entitled "Self-Directed Learning Readiness Among Working Adult Singaporeans: A Correlational Analysis" and your minor amendment to your survey questions.

As you progress with the research, all requests for changes or modifications, ethics approval renewals and serious adverse event reports must be reported to the Athabasca University Research Ethics Board via the Research Portal.

To continue your proposed research beyond December 23, 2016, you must apply for renewal by completing and submitting an Ethics Renewal Request form before December 15, 2016. Failure to apply for **annual renewal** before the expiry date of the current certification of ethics approval may result in the discontinuation of the ethics approval and formal closure of the REB ethics file. Reactivation of the project will normally require a new Application for Ethical Approval and internal and external funding administrators in the Office of Research Services will be advised that ethical approval has expired and the REB file closed.

When your research is concluded, you must submit a Project Completion (Final) Report to close out REB approval monitoring efforts. Failure to submit the required final report may mean that a future application for ethical approval will not be reviewed by the Research Ethics Board until such time as the outstanding reporting has been submitted.

If you encounter any issue with the Research Portal's online submission process, please contact the system administrator via research_portal@athabascau.ca.

If you have any questions about the REB review & approval process, please contact the AUREB Office at (780) 675-6718 or rebsec@athabascau.ca.

Sincerely,

Office of Research Ethics

APPENDIX D – 2017 AU-REB Certificate of Ethics Approval

Athabasca University
RESEARCH CENTRE

CERTIFICATION OF ETHICAL APPROVAL - RENEWAL

The Athabasca University Research Ethics Board (AUREB) has reviewed and approved the research project noted below. The AUREB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) and Athabasca University Policy and Procedures.

Ethics File No.: **21634**

Principal Investigator:
Mr. Gabriel Gervais, Graduate Student

Supervisor:
Dr. Martha Cleveland-Innes (Supervisor)

Project Title:
Self-Directed Learning Readiness Among Working Adult Singaporeans: A Correlational Analysis

Effective Date: December 4, 2017 **Expiry Date**: December 3, 2018

Restrictions:

Any modification or amendment to the approved research must be submitted to the AUREB for approval.

Ethical approval is valid *for a period of one year.* An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

A Project Completion (Final) Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date:** December 4, 2017

Joy Fraser, Chair
Athabasca University Research Ethics Board

Athabasca University Research Ethics Board
University Research Services, Research Centre
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca
Telephone: 780.675.6718

APPENDIX E – LPA Survey Administration Procedure for Instructors Involved in Data Collection

To administer the survey, kindly follow the steps below in the order they are mentioned:

1. **Distribute a copy of the survey questionnaire** to each student attending your session
    - A sufficient number of survey questionnaires is already in your venue or will be distributed to you by the research collaborator.

2. **Open the "LPA Survey" folder** found on the top right-hand corner of the desktop screen of the PC in your venue.

3. **Launch and play the video file "LPA Survey Explained - Video.mp4"**. This video explains to the students what the research is all about and highlights the key points of the cover page of that survey questionnaire.

    - In the unlikely event that the video cannot be played, then simply launch and show the Powerpoint file entitled: ""LPA Survey Explained - Slides.pptx" found in the same folder entitled "LPA Survey".

4. **Give the students 20-25 mins to complete the survey**. Most are likely to finish in 15 mins.
   Note that participation is entirely voluntary and that participation is completely anonymous. This is clearly stated on the cover sheet and in the video as well.

5. **Collect ALL the survey questionnaires from ALL the students**, even from those who have decided not to participate in the survey.

   The number of copies of the survey questionnaires that are collected back at the end must match the number of copies distributed at the beginning.

   The students CANNOT bring the survey questionnaire home and complete it later. All has to be completed during your session.

6. Pass the collected survey questionnaires back to the research collaborators. To do so, contact the research collaborator.

Thank you for your kind assistance,

Gabriel Gervais

Senior Lecturer
School of Business
Singapore Republic University

APPENDIX F – Script of the Video Shown to Potential Survey Respondents

Slide 1

Hi,

My name is Gabriel Gervais

I am a full-time faculty at the school of business at Singapore Republic University.

I am currently pursuing a doctorate in education with Athabasca University in Canada.

I am also currently conducting a doctoral research that will be looking at the learning attitudes and preferences that working adults Singaporeans have towards their own learning.

To carry that research, I am collecting data by way of a survey questionnaire and I am here today to seek your participation in that survey.

I will take a few minutes to explain to you now what this is all about.

Slide 2

First, you need to note that a copy of the survey questionnaire has been or will shortly be distributed to each one of you by your instructor.

To save time, I will go through some of the main points of the cover page so that you will be able to start participating, if you choose to do so, as quickly as possible.

Slide 3

As explained earlier, this survey will be about your learning preferences and attitudes towards your education and we will also gather information about your educational as well as your professional background.

Slide 4

Your participation is important not only to SRU but also to you as a student because the findings of this research will be used to help this institution develop and provide you with better supporting activities that will improve your overall learning experience at SRU.

Slide 5

Although we hope that you will participate, you should note that your participation is entirely voluntary, which means that you can decide to participate, you can also decide not to participate and you can even decide to stop participating at any point in time when you are answering this survey, up until you have handed in your survey questionnaire to the instructor.

Slide 6

Your participation is completely anonymous because the survey itself does not collect any data that can identify you personally so we do not maintain any list of participants or list of non-participants.

Slide 7

To ensure that your participation is completely voluntary, please note that the principal investigator, that means to say me, along with my collaborators, we will not supervise or teach your course this semester, neither are we going to mark or grade, monitor or otherwise assess any of the assignments that are relating to the course that you are currently attending.

Slide 8

Your instructors are also not involved, except for distributing and collecting the survey forms. So he or she does not derive any benefit from your participation or your decision not to participate in this survey.

Slide 9

There are four parts to the survey, parts 1, 2, 3, and4 and as you can see here, each part collects different types of information: the first one about learning preferences and attitudes, the second about your education, the third one about your work and finally the last one, part 4, will collect socio-demographic data.

Slide 10

When you answer this questionnaire, you can use a red, a blue or a black pen; you also use a pencil, although a pen is preferable.

Except for two questions, you tackle each question simply by indicating which one of the suggested answers is most applicable to you or to your current situation.

Slide 11

In part one, for instance, you choose the answer that best describes how you feel about each of the statements given.

In this instance, we are asking you to express how your feel about the following statement: "Learning is a tool for life".

Depending on how you feel about this statement, you would indicate your answer as either 1, 2, 3, 4 or 5, depending on whether this is almost never true for you as you hardly feel this way, or it is almost always true for you, as there are very few times when you don't feel this way, or your feeling falls somewhere in between those two statements, as reflected in the scale.

Slide 12

In this instance, you would indicate your answer by simply circling a number that corresponds to the statement that best describe how you feel about "Learning is a tool for life".

Slides 13, 14 and 15

In the other three parts, we also ask you to do the same, except that you don't necessarily need to circle the answer, you can simply either indicate a tick or a cross in the box that correspond to the answer that more closely correspond to your current situation, feeling or state of mind.

Slides 16 & 17

In some rare situations, we will ask you to provide a small piece of information beyond a tick or a cross. We will ask you things such as your working experience, and you would indicate your answer in a way similar to the example given here.

Slides 18 & 19

Part II is made out of number of sections. Section A is going to ask you questions about your primary school.

After completing this section, you may notice that Section B seems to be having the same questions. But these questions, please note, are about your secondary school education. So sections A and B contain the same questions but section A is about your primary school and section B is about your secondary school.

Slide 20

Overall, completing this questionnaire should take you no more than 15 to 20 minutes to complete.

We would request that you do not detach any of the pages from the survey questionnaire, including the cover page, and at the end, you should hand in your survey questionnaire to your instructor.

Please note that you should return that survey questionnaire to your instructor, regardless of your status as a participant.

You decided to participate, you return the survey questionnaire to your instructor.

You decided not to participate? You simply return a blank survey questionnaire to your instructor.

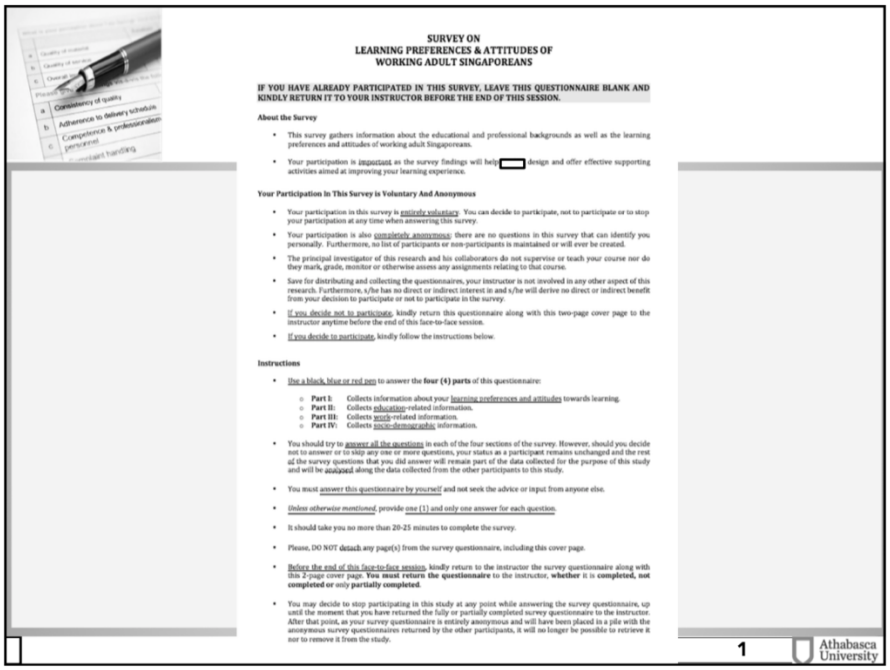
And if you decided to participate and then decided to stop participating after a while, you simply hand-in your incomplete survey questionnaire to your instructor.

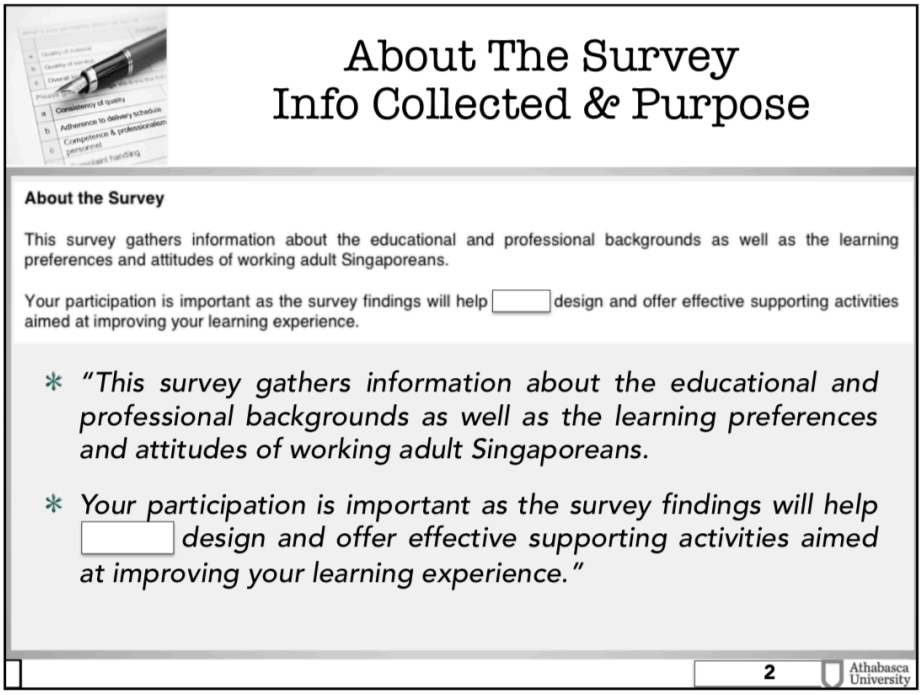
Slide 21

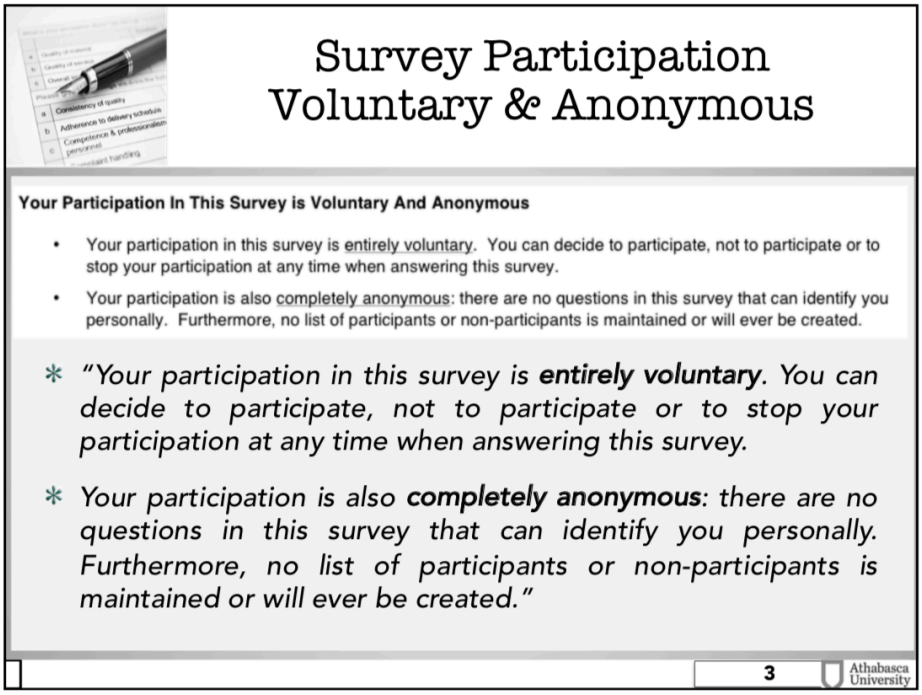
If you wish to contact me or my supervisor about this survey, you can take note of the contact details that are found on the second page of the survey questionnaire.

Thank you very much for your kind attention.

APPENDIX G – Slides of the Video Shown to Potential Survey Respondents




About The Survey
Info Collected & Purpose
About the Survey
This survey gathers information about the educational and professional backgrounds as well as the learning preferences and attitudes of working adult Singaporeans.
Your participation is important as the survey findings will help design and offer effective supporting activities aimed at improving your learning experience.
* "This survey gathers information about the educational and professional backgrounds as well as the learning preferences and attitudes of working adult Singaporeans.
* Your participation is important as the survey findings will help design and offer effective supporting activities aimed at improving your learning experience."
2
Athabasca University


Survey Participation
Voluntary & Anonymous
Your Participation In This Survey is Voluntary And Anonymous
• Your participation in this survey is entirely voluntary. You can decide to participate, not to participate or to stop your participation at any time when answering this survey.
• Your participation is also completely anonymous: there are no questions in this survey that can identify you personally. Furthermore, no list of participants or non-participants is maintained or will ever be created.
* "Your participation in this survey is entirely voluntary. You can decide to participate, not to participate or to stop your participation at any time when answering this survey.
* Your participation is also completely anonymous: there are no questions in this survey that can identify you personally. Furthermore, no list of participants or non-participants is maintained or will ever be created."
3
Athabasca University

Principal Investigator
No Involvement In Your Course

Your Participation In This Survey is Voluntary And Anonymous

- The principal investigator of this research and his collaborators do not supervise or teach your course nor do they mark, grade, monitor or otherwise assess any assignments relating to that course.
- Save for distributing and collecting the survey forms, your instructor is not involved in any other aspect of this research. Furthermore, s/he has no direct or indirect interest in and s/he will derive no direct or indirect benefit from your decision to participate or not to participate in the survey.

* *"The principal investigator and collaborators **DO NOT** supervise or teach your course nor do they mark, grade, monitor or otherwise assess any assignments relating to that course.*
* *Save for distributing and collecting the survey forms, your instructor is not involved in any other aspect of this research and has NO direct or indirect interest or benefit from your decision to participate or not to participate in the survey."*

* "

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Survey
Completing The Questionnaire

- Use a black, blue or red pen to answer the **four (4) parts** of this questionnaire:
  - **Part I:** Collects information about your learning preferences and attitudes towards learning.
  - **Part II:** Collects education-related information.
  - **Part III:** Collects work-related information.
  - **Part IV:** Collects socio-demographic information.

* *"There are **four (4) parts to this survey**.*
  * ***Part I**: **learning preferences** and attitudes towards learning.*
  * ***Part II**: **education-related information***
  * ***Part III**: **work-related information***
  * ***Part IV**: **socio-demographic information***
* *You should try to **answer all the questions** in the survey."*
* *To answer the questions, you can use a **black**, **blue**, **red** pen.*

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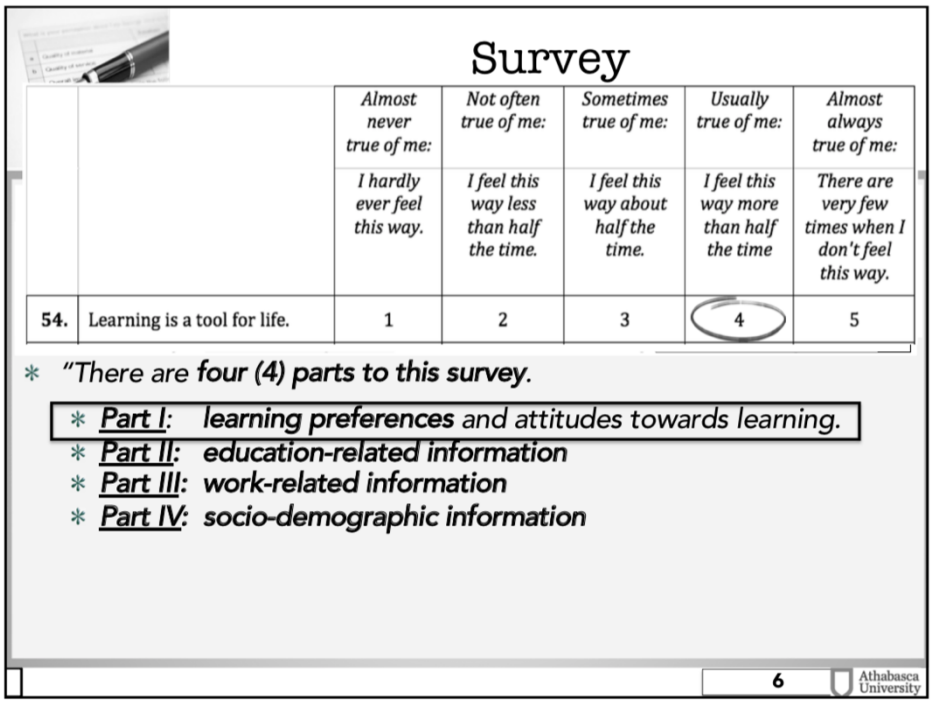

Survey

		Almost never true of me:	*Not often true of me:*	*Sometimes true of me:*	*Usually true of me:*	*Almost always true of me:*
		I hardly ever feel this way.	*I feel this way less than half the time.*	*I feel this way about half the time.*	*I feel this way more than half the time*	*There are very few times when I don't feel this way.*
54.	Learning is a tool for life.	1	2	3	4	5

* *"There are **four (4) parts to this survey**.*
  * ***Part I**: **learning preferences** and attitudes towards learning.*
  * ***Part II**: **education-related information***
  * ***Part III**: **work-related information***
  * ***Part IV**: **socio-demographic information***

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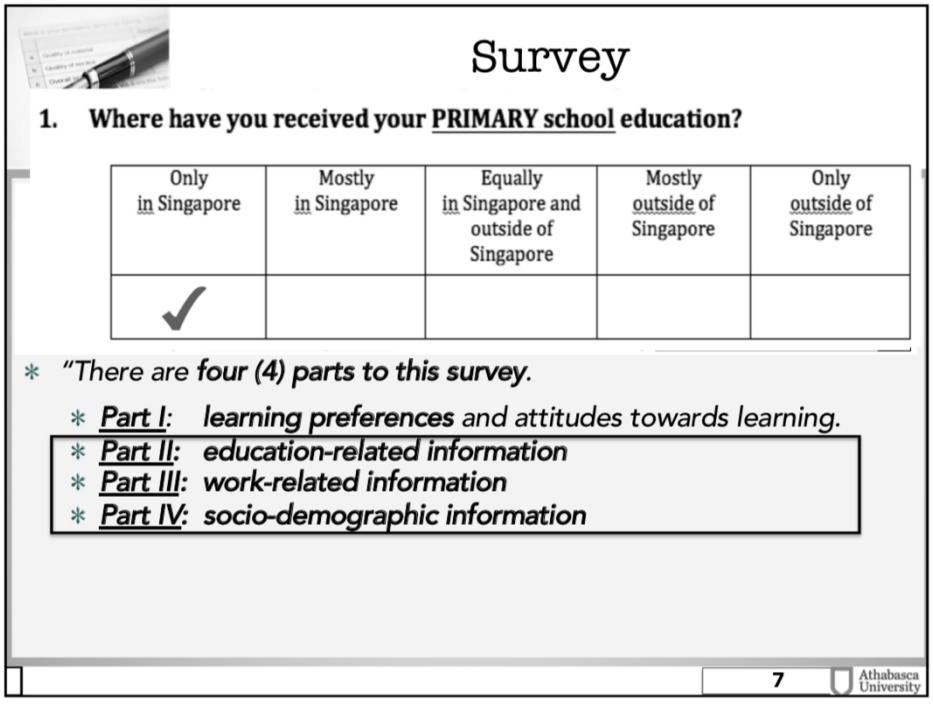

Survey

1. Where have you received your PRIMARY school education?

Only in Singapore	Mostly in Singapore	Equally in Singapore and outside of Singapore	Mostly outside of Singapore	Only outside of Singapore
✓				

* *"There are **four (4) parts to this survey**.*
  * ***Part I**: **learning preferences** and attitudes towards learning.*
  * ***Part II**: **education-related information***
  * ***Part III**: **work-related information***
  * ***Part IV**: **socio-demographic information***

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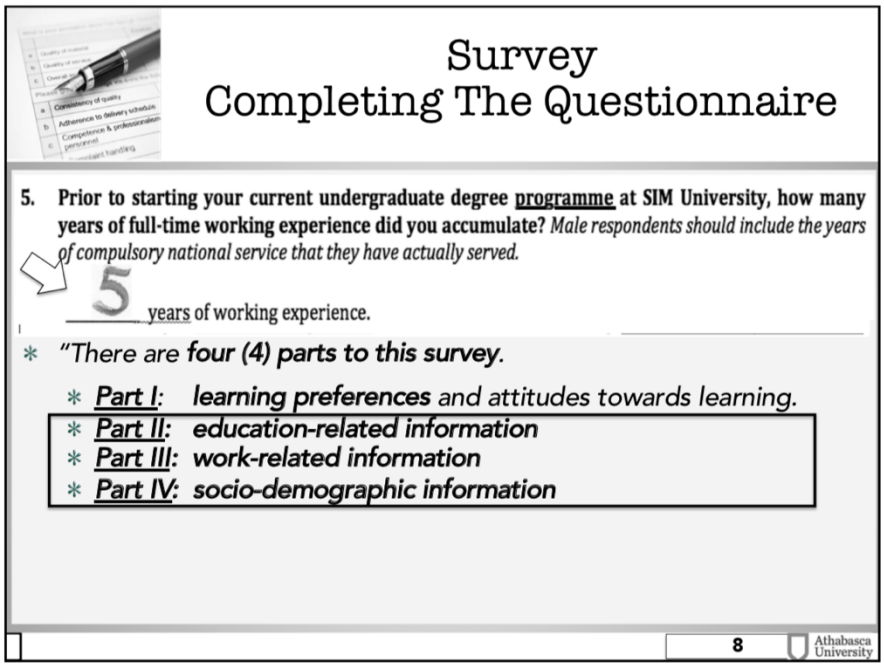
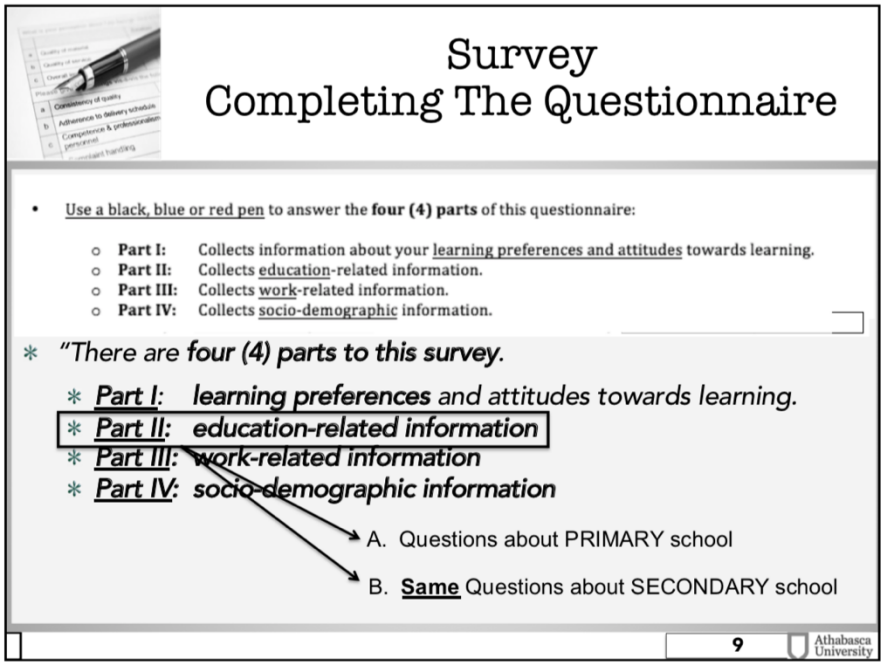

Survey
Completing The Questionnaire
5. Prior to starting your current undergraduate degree programme at SIM University, how many years of full-time working experience did you accumulate? Male respondents should include the years of compulsory national service that they have actually served.
5 years of working experience.
"There are four (4) parts to this survey.
Part I: learning preferences and attitudes towards learning.
Part II: education-related information
Part III: work-related information
Part IV: socio-demographic information
8
Athabasca University


Survey
Completing The Questionnaire
Use a black, blue or red pen to answer the four (4) parts of this questionnaire:
Part I: Collects information about your learning preferences and attitudes towards learning.
Part II: Collects education-related information.
Part III: Collects work-related information.
Part IV: Collects socio-demographic information.
"There are four (4) parts to this survey.
Part I: learning preferences and attitudes towards learning.
Part II: education-related information
Part III: work-related information
Part IV: socio-demographic information
A. Questions about PRIMARY school
B. Same Questions about SECONDARY school
9
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Survey
Returning the Questionnaire

- It should take you no more than 20 minutes to complete the survey.
- Please, DO NOT detach any page(s) from the survey form, including this cover page.
- Before the end of this face-to-face session, kindly return to the instructor the survey questionnaire along with this cover page. **You must return the questionnaire** to the instructor, **whether** it is **completed, not completed or** only **partially completed**.

* *"It should take 15-20 minutes to complete the survey.*
* *Please, DO NOT detach any page(s) from the survey questionnaire, including the cover page.*
* **Before the end of this face-to-face session**, kindly return to the instructor the survey questionnaire along with the cover page.
* The questionnaire **must be returned** to the instructor, whether it is completed, not completed or only partially completed."

10 Athabasca University

Thank You

11 Athabasca University

APPENDIX H – Dr. Guglielmino's Reply About Request for SDLRS Sub-Score Analysis

From: **Lucy Guglielmino** lguglielmino@rocketmail.com
Subject: Re: LPA Survey Form Order: Gervais
Date: 18 November 2014 at 10:38
To: Gervais Gabriel

LG

Greetings,

I have responded to your questions below.

All the best,
lmg

Lucy M. Guglielmino
Phone/FAX: (772) 429-2425

Don't miss the 29th International Self-Directed Learning Symposium in February 2015 at Cocoa Beach, FL! See sdlglobal.com for details on the symposium and to view the International Journal of Self-Directed Learning.

From: Gervais Gabriel
To: Lucy Guglielmino <lguglielmino@rocketmail.com>
Cc: Gervais Gabriel
Sent: Monday, November 17, 2014 9:25 PM
Subject: Re: LPA Survey Form Order: Gervais (U SIM)

Dear Dr. Guglielmino,

Thank you for your prompt reply.

Before making a decision about this, could you kindly clarify the following?

1. I understand that you will be sending me a .pdf version of your questionnaire that would print on the 17" x 22" stock you mentioned. However, if needed, would it be possible to send me the same questionnaire in a .pdf format that would allow printing on four separate US-letter (or better still, A4-size) pages? The printer would be able to align it in any of these formats.

2. I must mention that Professor Cleveland-Inness, my supervisor, is a full-time faculty at Athabasca University (Canada) while the survey forms will be distributed to students in SIM University in Singapore, the university where I work. Does the fact that my supervisor is not and will not be physically present when the survey forms are distributed and collected pose a problem on your end with regards to the *Agreement to Honor Copyright* document ? That would not be a problem.

3. Would it be possible for you to indicate which one of the eight factors is being measured by each of the 58 items of the LPA questionnaire? (This is not related to the printing solution you suggest but it is a question that I have been wanting to ask for a

while). We prefer not to share the factors, as the overall score is the most reliable. See the paste-in below>

Rationale for Avoiding Use of Subscores Derived from SDLRS Factors

The use of subscores derived from SDLRS factors is not recommended. Two major reasons support this decision:

1. While the overall score has an excellent reliability index, any subscores derived from factors would necessarily have greatly reduced reliability because of the relatively small number of items loading on some of the factors.

2. Since factor analysis results can vary by sample (Gorsuch, 1983), the use of a subscore structure derived from a factor analysis of one sample may not necessarily result in an adequate representation for another sample. This suggests that the only way one could safely use subscores derived from factor analysis results would be if the factor analysis were performed on the sample for which the subscores were to be derived. In addition, since the recommended number of subjects for an adequate factor analysis is normally ten per item (Nunnally, 1978), most samples are too small to qualify for this procedure.

After a major factor analytic study of the SDLRS using LISREL modeling, West and Bentley (1990) concluded that, although there is a definite underlying factor structure in the SDLRS, the factors are highly correlated. Therefore, the overall score is by far the most interpretable measure and the one that should be used. This recommendation confirms my beliefs and practice in regard to the use of SDLRS results.

References

Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Hillsdale, N.J.: Lawrence Erlbaum.

West, R. F., & Bentley, E. L., Jr. (1990). Structural analysis of the Self-Directed Learning Readiness Scale: A confirmatory factor analysis using LISREL modeling. In H.B. Long & Associates, *Advances in research and practice in self-directed learning* (pp. 157-180). Norman, OK: Oklahoma Research Center for Continuing Professional and Higher Education of the University of Oklahoma.

Lucy M. Guglielmino, Ed.D

APPENDIX I – Author's Biography

Gabriel Gervais holds a Civil Law degree (LL.L) and a Master of Business Administration (MBA) from the University of Ottawa, Canada. After travelling across Europe, North Africa and South-East Asia for two years, he arrived in Singapore in 1991 where he has since been living.

After teaching French at the French Alliance in Singapore, Gabriel joined the school of business at Nanyang Polytechnic where he taught diploma courses in human resource management, marketing, management, organisational behaviour and international business. In 2001, he joined a division of the Singapore Institute of Management and, four years later, the school of business at SIM University where he assumed the responsibilities of head of programmes, overseeing a number of diploma and undergraduate business degree programmes before being transferred to the Singapore University of Social Sciences (SUSS).

In 2017, Gabriel was appointed to the newly formed Online Learning Unit (OLE) and has been instrumental in the successful launch of the first two full online courses offered by the university. Throughout his 16-year tenure at the university, Gabriel has taught courses in marketing, management, organisational behaviour and business communication at both the under and post-graduate levels. His research interests focuses on the impact that leading-edge technology has on human lives: the way we work, the way we play and, more specifically, the way we act and interact with one another.