Authentic Assessment, Teacher Pedagogy, and Student Satisfaction

Lim Keai*

Academic Department, Amity Global Institute, Singapore

ABSTRACT

This article purposed to analyse the mediating role of authentic assessment in the relationship between teaching pedagogy and student satisfaction in the Singapore Private Education industry. The target group for this quantitative study consisted of international Postgraduate MBA students from various countries selected through simple random sampling methods. A questionnaire consisting of three dimensions i.e. Student Satisfaction, Teaching Pedagogy, and Authentic Assessment was constructed and used to collect opinions from 344 MBA graduates. Statistical Package for the Social Sciences (SPSS) was used to analyse the collected data. Multiple Linear Regression Analysis and Sobel Test showed the mediating effect and the predictive power of authentic assessment on the relationship between Teaching Pedagogy and student satisfaction. Essential research ethical issues were addressed and adhered to. The findings and knowledge generated from this study on student satisfaction will be significant and beneficial for institutions or individuals to identify and rectify any area for improvement in student satisfaction.

Keywords: Authentic assessment, Mediating effect, Student satisfaction, teaching pedagogy

Introduction

One of the top priorities in Private Education Institutions (PEIs) in Singapore is to ensure ultimate student satisfaction and academic success (Winberg & Hedman, 2008) which is required by the Committee for Private Education (CPE) through the EduTrust Certification Scheme. Consequently, all PEIs would formulate various activities to deliver exceptional service quality to ensure optimum student experience and satisfaction (Anderson, Fornell & Lehmann, 1994). Moreover, in her publication, Cheng (2016) pointed out the strong influence of student satisfaction on quality education (Cheng, 2016), and Ko and Chung (2014) have determined a significant correlation between teaching quality and student learning satisfaction (Ko & Chung, 2014) which could improve student academic attainment (Snehi, 2011). One of the ultimate goals of most postgraduate programmes such as MBA is to enable and equip students with the essential confidence, skills, and competence to function effectively in their workplace.

PEIs were always under pressure to assure high passing and graduation rates which could
improve their admission performance. Moreover, they should assist students to acquire competencies, and integrating knowledge, skills, and attitudes which could be applied in a professional life context so that students are future career-ready when they returned to their respective country of origin. This concept is in line with various researchers such as Wiggins (1993) who advocate the necessity to provide an authentic curriculum that mimics a real-world industry situation where students should competently carry out real-life tasks or challenges (Wiggins, 1993). Consequently, by endorsing authentic learning, PEIs are expected to provide beyond one-size-fits-all teaching and inspire students to adapt, learn, and experience authenticity by considering and interacting with the external environment (Dewey, 1938).

**Problem Statement**

The research problem that will be addressed in this study is factors that will contribute to the low student satisfaction rate in PEI higher education. According to CPE, there is a downward trend in student satisfaction. In the selected institute, the end-semester student survey report showed that the quality of teaching might have a direct impact on student learning and experience. Some students have indicated the need of incorporating industrial-based knowledge and skill set which could enhance their employability. Therefore, this study will aim to explore the teacher Teaching Pedagogy and Authentic Assessment, to uncover the reasons for low student satisfaction. Kember (2004) has provided some influencing components, namely college policies, facilities, learning environment, programme designs, and quality of lesson delivery (Kember, 2004). In addition, Ko and Chung (2014) concluded that to improve student performance and increase their learning satisfaction, the institute must provide quality teaching (Ko & Chung, 2014). However, there are minimum research studies conducted in determining the role of authentic assessment in mediating and enhancing student satisfaction in private education. In sum, this study aims to propose a theoretical framework to study the mediating effect of authentic assessment on the relationship between Teaching Pedagogy, and student satisfaction.

**Research Questions**

The literature reviews presented abundant research and studies conducted on teaching pedagogy, student satisfaction, authentic assessment, and their applications in the education industry. Nevertheless, little or no research was carried out, especially in applying Teaching Pedagogy and mediating the effect of authentic assessment concepts on student satisfaction in the private education industry, particularly in Singapore. Hence, this study aimed to close the research gaps by addressing the following research questions:

- What is the association between teaching pedagogy and student satisfaction?
- What is the association between authentic assessment and student satisfaction?
- Does the authentic assessment have a mediating effect on the relationship between teaching Pedagogy and student satisfaction?

**Hypotheses**

- Null Hypothesis $H_{01}$: There are no existing relationships between teaching pedagogy and student satisfaction.
- Null Hypothesis $H_{02}$: There are no existing relationships between authentic assessment and student satisfaction.
- Null Hypothesis $H_{03}$: Authentic assessment does not significantly mediate the relationship between Teaching Pedagogy and student satisfaction.

**Literature Review**

**Student Satisfaction (SS)**

Student satisfaction can be regarded as a defined short-term attitude by evaluating students’ educational experience, customer services received, and facilities provided by the institute where the learning occurred (Weerasinghe et al., 2017). It is a multidimensional process affected by various internal (personal) and external (institutional) factors. Personal factors are those associated with student characteristics, emotions, and attitudes (Goi et al., 2018) while institutional factors indicate the general aspects (academic and non-academic) of students’ educational experience. For
example, the quality of teaching physical facilities, and effective use of technology are some of the key contributing factors to student satisfaction (Wilkins & Balakrishnan, 2013). Other personal factors such as serious illness, financial issues, family matters, and personal ability may cause student dissatisfaction (Osman et al., 2014; Sargent et al., 2011). In contrast, external factors that could be controlled or managed by the institution to enhance the student learning experience and academic performance include institute reputation, programme recognition, learning environment and facilities, programme costs, curriculum design, and delivery excellence, and academic/operation service (Bennett & Kane, 2009; Meling et al., 2012).

From a service marketing perspective, a service provider must deliver exceeds the customer’s expectations type of quality service. Likewise, student satisfaction only occurs when the service quality received meets or exceeds their expectations (Mark, 2013). Thus, to produce satisfied students, Higher Education institutes were expected to prepare their students authentically to meet the needs of a knowledge-based economy (Dearlove, 1995) which is in line with the CPE guidance document where PEIs are expected to look into students’ employability. This increasing emphasis on graduate employability is linked to quality education and student satisfaction (Molesworth et al., 2009). Studies have shown that high student satisfaction would enhance the institutional reputation and financial position (Munteanu et al., 2010) because the retention rate will be higher, and the attrition rate would be lower with satisfied students (Tinto, 1993). In return, they would likely provide positive word-of-mouth communication to other potential candidates in joining the institute-offered programmes.

Since providing quality service could meet student needs and increase the competitiveness of an institute, it would be imperative to clearly define the dimensions of quality to measure the degree of satisfaction. Chang et al., (2020) have developed the SERVQUAL scale to measure service quality by comparing the service performance to customer expectations on 22 items; namely tangibles, reliability, responsiveness, assurance, and empathy (Chang et al., 2020). As this scale was criticized for its poor validity and reliability (Clemes et al., 2007), an alternative instrument i.e. SERVPERF, which has ignored customer expectations and focused on measuring only customer experience, was developed (Cronin & Taylor, 1992). However, it was not designed and developed to measure service quality in higher education but service quality in general. Consequently, Abdullah (2006), based on a 41-item instrument, proposed and developed a new and more comprehensive performance-based measuring scale HEdPERF (Higher Education PERFormance) within the higher education sector to capture the authentic factors of service quality using six identified dimensions such as Non-Academic Aspects (NAC), Academic Aspects (AA), Reputation of Institute (ROI), Access (ACC), Programme Issues (PI), and Lesson Understanding (LU) (Abdullah, 2006).

**Teaching Pedagogy (TP)**

Teaching pedagogy, according to Jumanovich and Eshboevna (2019), refers to the various methods and practices teachers used to cultivate students learning (Jumanovich & Eshboevna, 2019). Lamm (1963) focused on three patterns of instruction, namely imitation, moulding, and educability. Instead of classifying them according to knowledge level attainment levels, the mode of instruction will also be determined by the learning objectives to be achieved. It was mentioned that there could be hierarchical levels among the three patterns depending on the seven dimensions stated by the author i.e. aims, achievement, learners, subject matter, teacher, social functions, and psychological interpretation of the teaching (Lamm, 1963). The ultimate goal is to enable learners to progress from the lower patterns to the higher ones i.e. from imitation to moulding, and from moulding to development. Conversely, Shulman (1987) specified seven categories of knowledge for teachers to incorporate into their lessons i.e. General Pedagogical Knowledge, Knowledge of learners and their characteristics, Knowledge of Educational contexts, Knowledge of Educational goals, purposes, and values, and their philosophical and
historical grounds, Content Knowledge, Curriculum Knowledge, and Pedagogical Content Knowledge. Shulman claimed that teachers' subject knowledge and pedagogy should not be treated as mutually exclusive. He introduced the notion of pedagogical knowledge which combined the 'what' and 'how' of teaching which could be used to guide teachers' actions in highly contextualized classroom settings such as dealing with diversity in students, localisation of teaching materials, use of suitable analogies, illustration, examples, explanation, demonstration, and appropriate mode of assessment and evaluation (Shulman, 1987). Both researchers have a similar notion that the teachers should be the subject expert and they must understand their students, institutional aims, resources available, their knowledge of the subject matter, and mode of delivery. Therefore, Teaching Pedagogy should include conscious and attentive efforts to link with learning to advance it. Additionally, it is not just merely implementing the course contents; instead, the focus should be on the holistic development of each student to reach their potential.

Similarly, Guolla (1999) and Shevlin, Banyard, Davies, and Griffiths (2000) in their research concluded that lecturers' enthusiasm and charisma were two of the most important factors when students evaluate their teaching quality and ability which could be used to predict student satisfaction (Guolla, 1999; Shevlin et al., 2000). Besides, exceptional instruction, informed course advisors, knowledgeable faculties, and overall instruction quality were some of the key factors in higher education student satisfaction associated with a course and teaching quality (Elliott & Shin, 2002). Other important aspects of teaching style for student satisfaction include clarity of course structure, learning objectives, course materials, organization and presentation skills, and teacher facilitation (Spooren et al., 2007). Furthermore, as the target respondents in this study were mostly adult working professionals, Knowles' Theory of Andragogy (Kurt, 2020) was considered and applied as it assumed that adult learners could independently be motivated to learn when they understood the benefits, needs, and interests of the relevant learning experience offered to them. Therefore, instead of a one-size-fits-all solution, a specific learning design and delivery model would be provided according to the learners’ needs (Brown et al., 2013).

Consequently, according to various teaching situations, teachers would adopt different teaching styles and approaches, or roles in the classroom. Collins and Pratt (2010) have developed a five-perspective teaching model i.e. Transmission (TRA): focus on effective delivery of content, Apprenticeship (APP): focus on modelling ways of being, Developmental (DEV): focus on cultivating ways of thinking, Nurturing (NUR): focus on facilitating self-efficacy, and Social Reform (SR): focus on seeking a better society, which helped to define teachers' view of 'what it means to teach' and 'why we think such actions are worthy and justified' (Collins, 2010). Teaching style can be defined as persistent personal qualities and behaviours that appear in how teachers conduct their classes. It is their educational philosophy, beliefs, values, and assumptions about teaching which are revealed in their teaching style. Consequently, the dominant teaching perspective could be determined which would influence the teaching pedagogies and student satisfaction (Cranton, 1994).

**Authentic Assessment (AA)**

Watering et al., (2008) stated that higher education institutes regard examining the students' understanding of what they have learned in class as one of the key elements in doing the various assessments (Watering et al., 2008). The classroom setting should be focused on how to equip students with vital capabilities required in the job market (Segers & Cascallar, 2003). According to Herrington and Herrington (1998), the institute should contextualise the learning environment with an authentic assessment that mimics real-life job activities which, in turn, motivates learners, enhance knowledge transfer, and heighten student learning. This hands-on approach to learning is one of the most effective ways to learn (Herrington & Herrington, 1998). The ultimate goal of education is to prepare students for the real world; therefore, institutes must provide ongoing authentic assessment opportunities to satisfy their learning needs. In addition, the provision of an authentic learning environment would improve
student performance and satisfaction (Simpson, 2016).

The concept of authenticity, when used as an assessment framework, should be viewed as a continuum, multidimensional and integrated instead of mutually exclusive factors (Newmann et al., 1996). Authentic assessment frameworks such as Wiggins (1993), Newmann, Marks, and Gamoran (1996), and Gulikers, Bastiaens, and Kirschner (2004) were used to understand the characteristics of various dimensions to heighten the authenticity of the assessment that is used to evaluate student’s proficiency. Gulikers et al., (2004) five dimensions framework can be used to design and support authentic learning by focusing on the authentic assessment tasks, learning physical context, social learning context, result, and authentic criteria (Gulikers, 2004).

The Problem task/s (TAS) should include activities that resembled real-world professional practice (Reeves, 2011) to inspire students to establish the link and apply the knowledge acquired in class which could foster learning, performance, and satisfaction. In this authentic learning setting, students should be encouraged to integrate and apply knowledge, skills, and attitudes gathered like working professionals in problem-solving and solution-generation (Darling-Hammond & Snyder, 2000).

The authentic Physical learning environment (PC) would resemble a real-world office situation (Herrington & Oliver, 2000) such as work pressure, office politicking, and lack of communication or clear instruction. It also requires learners to perform and complete the assessment task with stipulated timing (Torulf, 2008).

Wiggins (1993) viewed this time constraint to be challenging but necessary as it is realistic, and to be mimicked closely (Wiggins, 1993). The Social Learning Context (SLC) will show whether the assigned tasks should be accomplished individually or in a group. This social process should be considered in crafting the authentic assessment with reference to a specific real-life social culture and system context.

The Assessment Result (AR) or form is purposed to examine the competencies of the learner through the demonstration of their understanding of the authentic task (Wiggins, 1993). Institutes can use various ways such as verbal presentation, report writing, self-reflection, or class participation to capture learners’ understanding, or mastery of proficiencies (Gulikers, 2004). Different forms of feedback will be given to promote continual improvement.

Authentic Criteria (AC) and standards will be used to examine students’ performance and quality of work (Le Brun & Johnstone, 1994). It is also used as a defendable framework for assessment to outline, and contextualise the requirements and expectations to assure fairness (Scarino, 2005).

**Theoretical Framework**

![Theoretical Framework](source:developed for this study)
A theoretical framework functions as the blueprint and a guide for the entire research study. It also provides the structure to define the philosophies, theories, methodologies, and analytical approaches that will be used to help the researchers to understand and plan to research the topic. Accordingly, Figure 1 proposed the theoretical framework for this study. In this model, Teaching Pedagogy (TP) and Authentic Assessment (AA) were hypothesized as a multi-dimensional construct consisting of five dimensions which were modelled with Student Satisfaction (SS) as the dependent variable. It was proposed that Teaching Pedagogy is a significant determinant of Student Satisfaction. Additionally, Authentic Assessment plays a mediating role in the relationship between Teaching Pedagogy and Student Satisfaction in the private education industry.

**Methods**

Systematic research design and methodology are necessary so as collect relevant data for critical analysis to address the defined research objectives (Bung, 1967). It provides structured guidelines and functions like a blueprint to guide data collection and analysis activities to generate valid and reliable research results (Debra & Rog, 1997). Hence, the research methodology used in this study will refer to Saunders, Lewis, and Thornhill’s (2009) research process onion represented which consists of five layers/perspectives i.e. the research philosophy, research approach, research strategy, time horizons, and data collection methods (Saunders et al., 2009).

**Research Philosophy**

The researcher's research philosophies such as positivism, interpretivism, or realism view were essential before design crafting a suitable methodological framework. The philosophy of positivism was applied in this study because the level of student satisfaction could be verified and predicted by applying suitable statistical analysis to collect quantitative data (Wisker, 2008). Furthermore, to derive a model to answer the research questions, the existing theories were used to test and confirm the proposed research (Saunders et al., 2009). Consequently, the ultimate goal of this study was to clarify and establish the effects of different factors (independent variables) on student satisfaction (dependent variable) in private education which could be derived from the quantifiable data, independent respondents, and instruments adopted (Kasi, 2006).

**Research Approach**

Hussey and Hussey (1997) showed there was two main research approaches i.e. deductive and inductive which the researcher can adopt. In general, the deductive approach is specific, narrower and explores a known theory, and is widely used to test and confirm the validity of the proposed research hypotheses while the inductive approach is more open-ended and exploratory without fixed theories or hypotheses at the beginning of the research (Hussey & Hussey, 1997). Accordingly, the deductive approach was used in this study since the data on the various contributing factors to student satisfaction could be gathered, reviewed, and reorganized into various testable hypotheses. Next, these proposed assumptions would be verified statically, and a decision to accept or reject would then be made.

**Research strategy**

In this study, the survey research strategy was used to establish the research questions, propose the research hypotheses, gather subjective quantitative data from the target population, and apply descriptive and inferential statistical analysis to the gathered data. This study aimed to determine whether changes in the independent variables (contributing factors: Teaching Pedagogy and Authentic Assessment) would affect the dependent variable (Student Satisfaction). Additionally, this study attempted to establish the correlational relationships between the contributing factors and student satisfaction in private education. It also aimed to establish the mediating effect of authentic assessment on the relationship between teaching pedagogy and student satisfaction.

**Time Horizon**

While crafting the research process, researchers must consider the time horizon whether they intend to conduct a cross-
sectional (based on a specific period), or longitudinal (over a longer period) study. Research data was gathered at one particular point in time for a cross-sectional study instead of several times over a specific period in a longitudinal study (Sekaran & Bougie, 2010). The cross-sectional was used because of the limitation in resources and time, and also to minimise disruption to student learning. Although it might not provide a unique insight into a longitudinal study, it would take lesser time to measure the required variables in the current target population.

**Data Collection Method**

A questionnaire was used as an instrument to collect appropriate data for analysis to perform hypothesis testing (Somekh & Lewin, 2005). In this study, simple random sampling was used to determine a sample population that can adequately represent the total population of the private institute offering an MBA programme. The sampling frame can be obtained from Singapore Business Review which has been conducting the annual MBA Programme Survey where major providers will participate in the exercise. Based on a 2018 survey published in Singapore Business Review, there were 3,531 and 3,506 students enrolled in an MBA programme in 2017 and 2018 respectively. There are many ways to determine the required samples such as a Random Sampling Table developed by Krejcie and Morgan (1970), and an online sampling size calculation provided by the National Statistical Service. Since the target population was approximately 3,500 potential MBA candidates, based on these two methods, the proposed sample size for this study was derived as around 346 to 347 students.

Anderson and Morgan (2008) stated that a questionnaire must be designed simply and concisely to motivate the participants to provide the most complete, accurate, and unbiased responses (Anderson & Morgan, 2008). The constructs generated from the literature review on the contributing factors to student satisfaction were used in the questionnaire survey and distributed online for three months to randomly selected students from various PELs. The questionnaire was a five-point Likert scale with opinions from ‘Strongly agree/Very high impact’ (5) to ‘Strongly disagree/Little impact’ (1). The questionnaire construct was based on an industry-tested model (as presented in the Literature Review: the research Theoretical Framework) i.e., HEdPERF (Higher Education PERformance) model (Abdullah, 2006) on Student Satisfaction, Teaching Perspective Inventory model (Collins, 2010) on Teaching Pedagogy, and Five-Dimensional Framework for Authentic Assessment (Gulikers, 2004) on Authentic Assessment. Since this survey aimed to collect and generate information that will influence the student satisfaction rate, it is necessary to collect respondents’ biographical data or demographic information such as age, gender identity, country of origin, and work experience. Furthermore, a focus group was invited for pilot testing as a rehearsal of the proper survey to promote construct validity and improve the research design.

**Data Analysis**

In this study, the Statistical Package for Social Sciences (SPSS) was used to investigate and analyse the proposed hypotheses on the influences of the respective contributing factors affecting the student satisfaction rate. Firstly, the internal reliability test (using Cronbach’s Alpha coefficients) was conducted followed by the hypotheses testing on the proposed theoretical model; subsequently, Pearson Correlation was applied to produce a significant understanding of the relationships between Teaching Pedagogy, Authentic Assessment, and Student Satisfaction. Lastly, Sobel Test was used to determine the mediating effects of authentic assessment on the relationship between teaching pedagogy and student satisfaction.

**Ethical Consideration**

This non-experimental research assured that all participants were not manipulated, suffer physical harm, or be subject to psychological abuse. However, to safeguard respondents, ethical issues such as deception, voluntary participation, informed consent, privacy, confidentiality, and anonymity were managed in this study to adhere to the standards for conduct. Firstly, the participant’s opinions were used to address the research objective and not for any
other unethical purpose or manipulation. Participation was voluntary, and students were not obligated to complete the survey. Consent from the respondents was obtained that they were conscious of the nature and expectations of the study. Personal Data Protection Act (PDPA) was observed where respondents' identity remains anonymous, and their opinions remained confidential i.e., they would not be disclosed without permission.

Limitations
This cross-sectional study was conducted over three months due to limited time and funding. In comparison to a longitudinal study, it might lack in-depth investigation. To generate greater insights, further qualitative research such as phenomenology could be conducted in the future. Furthermore, this study used only self-administered surveys when there was little control over who participated and how well they understood the survey questions. Lastly, the target population was based on the MBA student community, so the findings might not be relevant to non-business colleges and universities.

Result and Discussion

Reliability Analysis
The internal consistency test on the research constructs was conducted before subsequent data analysis. This was to determine the actual value of the reliability of the data collected. The Cronbach's alpha values of the independent variables: Teaching Pedagogy (TP), dependent variables: Student Satisfaction (SS), and mediating variables: Authentic Assessment (AA) were measured and summarized in Table 1:

Table 1. Reliability Analysis

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Cronbach alpha</th>
<th>No of items</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Pedagogy (TP)</td>
<td>.693</td>
<td>5</td>
<td>SR, TRA, APP, NUR, DEV</td>
</tr>
<tr>
<td>Authentic Assessment (AA)</td>
<td>.614</td>
<td>5</td>
<td>AC, PC, AR, TAS, SLC</td>
</tr>
<tr>
<td>Student Satisfaction (SS)</td>
<td>.856</td>
<td>6</td>
<td>NAC, AA, ROI, ACC, PI, LU</td>
</tr>
</tbody>
</table>

Source: developed for this study

According to Yona (2020), when the Cronbach alpha value is lower than 0.5, there may be unreliable variables that can influence the projected results (Yona, 2020). Additionally, it will be regarded as 'Moderate' (between .600 to .700), 'Good' (between .700 and .800), and 'Very Good' (between .800 to .900). The coefficient results for this study were between .614, .693, and .856 respectively, the outcomes were satisfactory; therefore, it was unnecessary to remove any of the questionnaires used.

Correlational Analysis
The correlational analysis was conducted on the independent variable and mediating variable, the mediating variable and dependent variable, and the independent variable and dependent variable to confirm the linearity of their relationships before performing the Sobel Test as summarized in Table 2:

Table 2. Correlational Analysis

<table>
<thead>
<tr>
<th></th>
<th>TP</th>
<th>AA</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Pedagogy (TP)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authentic Assessment (AA)</td>
<td>.589**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Student Satisfaction (SS)</td>
<td>.723**</td>
<td>.713**</td>
<td>1</td>
</tr>
</tbody>
</table>

**Correlation is significant at the .01 level (2-tailed).

Source: developed for this study
It was confirmed that the correlation coefficients were statistically significant for the stated paths between the variables. The results showed that the mediator AL has a relatively weak association with both independent variable TP \((r=0.589, p<0.000)\) and dependent variable SS \((r=0.713, p<0.000)\) which may indicate that other influencing factors will affect its mediating effect. The value observed between TP and SS was significantly strong \((r=0.723, p<0.000)\) which could influence the mediating effect of AL. Overall, the analysis confirmed that the variables were significantly correlated; hence, the conditions needed to perform the Sobel test to examine the mediating effect have been fulfilled.

Further correlational analyses were performed to investigate the respective factor’s relationship and influence on the dependent variable SS. The results of various independent variable TP factors: TRA, APP, NUR, DEV, and SR were summarised in Table 3:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Teaching Pedagogy (TP)</th>
<th>TRA</th>
<th>APP</th>
<th>NUR</th>
<th>DEV</th>
<th>SR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>Pearson Correlation</td>
<td>.243**</td>
<td>.560**</td>
<td>.541**</td>
<td>.572**</td>
<td>.531**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>344</td>
<td>344</td>
<td>344</td>
<td>344</td>
<td>344</td>
</tr>
</tbody>
</table>

*Dependent Variable: SS **Correlation is significant at the 0.01 level (2-tailed).

Source: developed for this study

Apart from TRA, the remaining factors indicated a moderate and positive (ranging from .531 to .572) relationship with SS. TRA i.e. Transmission (TRA) focuses on the effective delivery of content displayed a poor but positive relationship \((r=0.243, p<0.000)\) with student satisfaction (SS). It could be at the postgraduate level, especially among the professional working adult, that students’ expectations of an MBA programme were more pragmatic when they preferred applied knowledge with guidance, mentorship, cultivation of thinking, facilitation of self-efficacy, and societal focus instead of focusing on academic delivery and pedagogy. On the contrary, the Apprenticeship (APP) variable displayed a moderately strong positive relationship \((r=0.572, p<0.000)\) with student satisfaction (SS). This could confirm the respondent believed that the inclusion of apprenticeship in their learning was an essential part of their learning to upgrade their knowledge, and skills and cultivate their attitude resulting in better work performance. It will be valuable for teachers to incorporate hands-on training and experience in their curriculum design to impart industry-recognised know-how and upgrade the learners’ skills according to the workplace expectations and requirements which would in turn improve their future employability.

**Hypothesis Testing**

Multiple regression analysis was performed on Teacher Practice (TP), Authentic Assessment (AA), and Student Satisfaction (SS), and the results were used to test the respective hypotheses as shown in Table 4:

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Dependent Variable</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>F</th>
<th>Sig.</th>
<th>Sobel Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TP</td>
<td>AL</td>
<td>.807</td>
<td>.042</td>
<td>.723</td>
<td>375.202</td>
<td>.000</td>
</tr>
<tr>
<td>TP</td>
<td>SS</td>
<td>.719</td>
<td>.053</td>
<td>.589</td>
<td>181.319</td>
<td>.000</td>
</tr>
<tr>
<td>TP</td>
<td>SS</td>
<td>.518</td>
<td>.044</td>
<td>.464</td>
<td>315.991</td>
<td>.000</td>
</tr>
<tr>
<td>AL</td>
<td>SS</td>
<td>.402</td>
<td>.036</td>
<td>.440</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: developed for this study
It is observed that there is a positive relationship between Teacher Practice (TP) and Student Satisfaction (SS) with a 59% influence of TP on SS. Additionally, AL also displayed a significantly positive relationship and 44% influence on SS. When testing the null hypothesis $H_01$ that there is no linear association between TP and SS, the null hypothesis $H_01$ ($t=5.238$, df = 343, $p<.001$) was not rejected. Similarly, the study has tested the null hypothesis $H_02$ that there exists a linear relationship between AL and SS, but it failed to reject the null hypothesis $H_02$ ($t=6.329$, df=343, $p<.001$). Consequently, this study confirmed that there are existing linear relationships between Teaching Pedagogy and student satisfaction, and authentic learning and student satisfaction.

**Mediating Effects Analysis**

Sobel Test was conducted to determine the mediating effects of the Curriculum Development Model and Curriculum Design Model on the effectiveness of the ICT initiative. The results were summarised in Table 3 and Figure 2:

![Figure 2. Mediating Effects Analysis with Sobel Test
Source: developed for this study](image)

To achieve a complete mediation, TP must significantly predict SS and AA individually, and AA must significantly predict SS. The total mediating effect, however, will be reduced significantly or rendered as partial mediation when AA is associated with TP and SS. To obtain a meaningful mediating effect analysis, the indirect effect must also be statistically significant, and the Sobel test statistic or the z-value must be greater than 1.96 (Baron and Kenny, 1986). The results in Figure 2 showed that TP significantly predicted AA ($F=375.202$, $p<.001$), and TP significantly predicted SS ($F=181.319$, $p<.001$). Moreover, TP combined with AL significantly predicted SS ($F=315.991$, $p<.001$). However, the standardized coefficient of SS decreased from .589 to .464. In sum, the mediating effects in the relationship between AA and SS were verified, and the significance of the indirect effects of TP on SS through AA was identified using the Sobel Test ($Z=59.655$, SE=.034, $p<.001$), so the mediating effects of AA were examined and confirmed. Nevertheless, when TP entered the relationship between AA and SS, the direct effect ($B=.719, p<.001$) was significant, and it was determined that a partial mediation existed between TP on SS via AL. In sum, the null hypothesis $H_03$ was rejected, so Authentic Assessment (AA) was proven to have a mediating effect between Teaching Pedagogy (TP) and Student Satisfaction (SS). In sum, an institute that links and integrates its curriculum to the current industrial practice and pragmatically teaches and assesses the learner's competencies for academic achievement and career readiness would promote student satisfaction (Australian Chamber of Commerce and Industry, 2007).

These findings demonstrated the need for a systematic yet comprehensive and holistic approach to developing and providing real-world context in a professional standards-based authentic assessment to understand student learning needs. Both in teaching and learning and student satisfaction, professional situations can reinforce authenticity, offering values that go beyond mere academic achievement but also encourage personal achievement, such as the ability to think critically when solving problems. The various selected forms of
authentic assessment focus on assessing learners' abilities to demonstrate their competence and ability to systematize and synthesize perceived deep information in a new way relevant to their professional environment. Moreover, an authentic assessment should not be static and treated as a point of reference; instead, it should dynamically mimic the real world and change within the given business context. However, one of the challenges in determining valid, reliable, and fair assessment is assessing student learning against evidence. Furthermore, the selection of criteria for assessing performance remains confusing, as teachers must constantly consider the real-world context, as it is impractical to include all students' professional practice in the assessment. These real worlds will evolve and change over time based on national and cultural contexts, skills or job requirements are different and are constantly transforming based on industry standards and requirements. As a result, the assessment tools used, the rubric and the criteria will be modified accordingly to fill this analysis gap. In short, authentic testing can increase test validity, which in turn helps the teacher to review and design their teaching accordingly to improve the quality of students' teaching and learning and promote their future readiness for learning. Thus, the application of authentic assessment as the ultimate goal of assessment would certainly motivate and benefit teachers and students due to its importance and relevance.

Conclusion
This study aimed to investigate the respective factors that would influence international student satisfaction in the Singapore PEI higher education context. It was deduced that industrial-based knowledge and skillset could enhance student employability; hence, it has confirmed the impact of teacher Teaching Pedagogy and Authentic Assessment on student satisfaction. Other influencing variables such as college policies, facilities, learning environment, programme designs, and quality of lesson delivery could improve student performance and increase their learning satisfaction. Furthermore, this study has determined the role of Authentic Assessment in mediating and enhancing student satisfaction in private education. As the world continues to change and evolve, institutes must strive to deliver the best possible educational experience for their students. As a result, educators could use authentic learning to foster original thinking and ideas, while supporting their entire educational journey. In sum, this study would help the participating students to understand factors contributing to increasing student satisfaction and managing their expectations. It would assist PEIs in adhering to the EduTrust Certification criteria, improve their lesson planning and delivery, student service and support provision, and devising Marketing activities which will, in turn, improve their institution's processes to stay competitive. To the broader community, this study would help to provide insights into enhancing student satisfaction which will help to prepare PEIs for their EduTrust Certification, or Renewal audit. EduTrust-certified PEIs could attract more overseas students which will sustain Singapore’s position as the global Education Hub. Lastly, the proposed conceptual framework could also be applied and implemented in wider private institutions to enhance their business performance by providing a career-ready curriculum to international students and closing the gap between academic knowledge and industrial expectations.

References


