

Measuring the Competency of Teachers in Business Studies towards Students' Academic Achievement

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Abstract The main aim of this study is to measure the competency of teachers in Business Studies in improving students' academic achievement in the subject. The three aspects of the teachers' competence assessed include teachers' knowledge, skills and professionalism towards students' academic achievement. In order to test the objective, a total of 135 Business Studies teachers were selected as respondents from the states of Perlis, Kedah and Penang. A set of questionnaires was used in this study to measure the level of teachers' competency towards the students' academic achievement. Based on the findings, the relationship between teaching skills and professionalism was significant but from low to moderate level. Regression analysis further indicated that the three variables were moderately significant towards students' academic achievement as dependable variable. Meanwhile, the findings also revealed that the teachers experience and qualification were insignificant and did not mediate the independent variable factors against the dependent variable when tested by using PROCESS analysis. In conclusion, there are other factors that are more likely to influence the students' academic achievement compared to the three study variables.

Keywords Teachers' Competency, Knowledge, Skills, Professionalism, Students' Academic Achievement

1. Introduction

In recent years, the development of technical and vocational education (TVET) has experienced rapid growth in Malaysia. The growth is due to industrial needs and market demand. The country's future depends not only on the educated community but also skilled workers who can cope with the rapid changes in the manufacturing and service industries [1]. Malaysia has reached a stage of development where growth in productivity is driven by the benefits of capital accumulation and labour input. The 11th

Malaysia's Plan [2] has set a labour productivity growth with the target of 3.7% per annum, well above the average growth of just 2% from 2011 to 2015. Hence, progressive changes are necessary to achieve the level of productivity to attain high-income country status. Malaysian government's desire is to improve the quality of education and training skills, drive innovation, utilize information and technology more broadly, foster good competition policy, improve labour market function and regulatory framework for small and medium enterprises, foster regional integration and enhance public sector productivity [3]. Thus, the importance of education cannot be neglected by the government.

Under TVET, the subject of Business Studies is offered in vocational colleges. Business Studies are also offered as a subject in the Higher Education Certificate of Malaysia (STPM). It is considered as an important subject in line with the governments' desire to produce knowledgeable and skilled students in entrepreneurship. Therefore, teachers are considered as the connecting link between the needs of the industry and the ability of students to realize Malaysia's aspiration to become a developed nation. Literature has stated that teachers are effective agents of change and are key drivers of national education [4, 5 and 6]. Hence, skilled professional and knowledgeable teachers are essential in producing future entrepreneurs.

1.1. Background of Study

Pre-university (pre-U) studies have been incorporated into the Malaysian education system for over 50 years. Students who have completed and passed their Malaysian Certificate of Education examination (SPM) are eligible to apply for the pre-university (pre-U) studies. The Malaysian Higher School Certificate (STPM) which is a pre-U examination was gazetted in 1982 to replace the Higher School Certificate (HSC) and High School Certificate (STP) examinations administered by the University of Cambridge Local Examinations Syndicate (UCLES). The

Malaysian Examination Council (MPM) that was established on February 1, 1980, under the Malaysian Examination Council Act [Act 225] was chosen to administer the STPM examination [7]. Following the acquisition of the two exams by MPM, the names of the STP and HSC exams were changed to STPM examination. In addition, the establishment of MPM was also aimed at realizing the conduct of the examination fully in Bahasa Malaysia which is in line with the implementation of Bahasa Malaysia as the medium of instruction in the national education system from the elementary to the pre-U education.

In total, 22 main subjects are offered at the STPM level today with the inclusion of the Malaysian University English Test (MUET) to be taken by students at the pre-U level. The format of the examination for all subjects comprises of 60% - 80% written tests while the course work carries 20% - 40%. Students are allowed to select 4 major subjects with an additional MUET subject for their STPM examination. On the other hand, at Malaysia, pre-U institutions consist of three main modes. The first mode is a college with a minimum of 12 classes accommodating only pre-U students and is taught by academic teachers who have been specially appointed. The second mode is a school with at least 12 classes, operating in a mainstream school but in separate blocks or buildings. This mode is governed by a mainstream principal in collaboration with a pre-U senior assistant. Meanwhile, the third mode is a school with less than 12 classes or schools which are located far from the city with no boarding facilities or public transportation and are operating in mainstream schools. This study focuses on all three modes.

Generally, a nation's educational development depends on its teachers' competence. Hence, this study aims to assess teachers' competency to understand the instability in students' achievement in STPM, particularly for Business Studies. Moreover, [8] identified that the teacher's competence is a determining factor for a student's achievement in the examination. Besides, available local and international literature highlighted teachers' roles, teaching and learning methods, curriculum and social aspects are the various influencing factors in a student's educational achievements. However, research on the influence of teachers' competence towards students' academic achievement is lacking and may even be incomplete for this subject particularly. There are few studies conducting particularly on teacher competence in other subjects. [8] History teachers' competency, [9] Malay Language teachers' competency and [10] Mathematic teachers' competency to name a few. To date, studies on teacher competence in the subject of Business Studies are not performed in this country.

1.2. Problem Statement

The pre-U curriculum transformation began in 2012 emphasizing the approach of andragogical style [11].

Andragogy is the art and science of adult learning which refers to any form of adult learning [12]. As such, the new and improved curriculum enables teaching and learning strategies to prepare students to address issues, generate ideas and solve problems. This revamped curriculum prioritizes the andragogical approach that provides lifelong learning opportunities for the students to face a challenging culture of living today. According to [12], teachers teaching pre-U level often face problems in terms of knowledge preparation prior to teaching due to the curriculum transformation that places greater emphasis on each subject. Newly appointed teachers often find it difficult to master the facts and concepts in the pre-U syllabus, most of which involve analytical methods which rank high in Bloom's taxonomy [13]. [14] further revealed that teachers in Malaysia lacked the confidence to teach high-level thinking skills. Therefore, lifelong education which has become a standard in many countries is yet to become a reality in Malaysia. This research will provide the platform to test whether the level of knowledge and skill of teachers in Malaysia especially in Business Studies contributes to nation's educational achievement.

In addition, the pre-U education system has now been made of a modular or semester-based system. Whereby, teachers are required to complete the syllabus within the stipulated time before students sit for their examination at the end of the semester. This system impacts the teachers because they will be required to replace their classes if they take a leave or do not attend meetings or courses during the teaching days. Apart from that, semester-based system shortens the time given to the teachers to complete the syllabus which has become an added emotional pressure on the teachers who have more clerical work than teaching. Excessive loads can cause teachers to lose focus and feel demotivated during teaching and learning processes. According to [15], teachers who failed to control themselves under pressure will affect the teacher-student relationship. In addition, this situation can adversely affect the quality of education and the teaching profession as it will indirectly undermine the efforts to create a society that is capable of leading the country's education system to better standards. On the other hand, high levels of work stress can lead to dissatisfaction and tendency to avoid or neglect work. In addition, such feelings will also create a toxic work environment and could lead to a desire to leave the teaching profession. There are four research objectives and questions for this study. First objective is to identify the competency of teachers based on the Iceberg Competency Model and the research question is what are the indicators of the teachers' competency. The second objective is identifying the competencies of teachers' knowledge, skills and professionalism and the level of academic achievement of students with the questions derived from what the competency level of the teachers towards students' academic achievement is? Third objective is to measure the influence of teachers'

knowledge, skills and professionalism towards the academic achievement of the students from the Northern Region of Peninsular Malaysia and the question is that do teachers' knowledge, skills and professionalism influence students' academic achievement. Fourth objective is to evaluate the teacher's qualification and teaching experience as factors mediating the relationship between teacher competency and students' academic achievement variables and the research question is whether teachers' qualification and experience act as intermediate variables for the relationship between teachers' competency and students' academic achievement.

1.3. Literature Review

Competence means the ability, willingness and ability to perform a task [16]. Competence is also defined as the combination of knowledge, skills and personal characteristics that must be acquired and practised in order to perform a job [17]. For instance, the basic principle of the competency model improves the performance of a teacher if he or she has all the competencies required to carry out his or her duties and responsibilities. Hence, specialization in a field and the frequency of performing a task will enable the teacher to perform his/her tasks effectively and efficiently.

This study employs the Iceberg Competency Model developed by Hay McBer group (1976). In 1993, [18] in their book entitled "Competence at Work" proposing a model developed by the McBer group to measure workers' competencies. This model described the concept of competence that an individual has an iceberg model based on two types of conditions. The first condition represents domains that are visible and measurable in a human being, while in the second there are some domains that are not visible to the naked eye and obscured. Both conditions are very important for one's work. Many researchers have also used this model as the basis for their research due to its compatibility and similarity inherent in the domains described in this model with the basic concept of education.



(Source: Spencer and Spencer, 1993)

Figure 1. Iceberg Competency Model

According to [18], there is the self-development component and the hard-to-develop self-component in an individual. Based on Figure 1, knowledge and skills are

above the water level while the behavioural components representing the values, social roles, motives and attitudes are at the bottom. An individual is subject to the components outlined by [18] in performing a task. In addition, [19] described the intangible characteristics of personality namely personality traits, self-perceptions, motivation and commitment to an individual's work were the major differences between any individuals.

1.4. Teacher Competency

Teacher competency is one of the most important and powerful factors in successful teaching [20 and 21] and has a significant impact on students' achievements [22 and 23]. Competent teachers can be considered as trained, skilled and professionals not only in the teaching and learning process in the classroom but also outside the classroom [24]. The quality and success of education depend on the teachers. Therefore, it is important for them to be equipped with the knowledge and teaching skills required to perform well. Competent teachers are capable of producing credible and competent students. The study conducted by [25] highlighted some of the challenges faced by teachers in achieving excellence among a diverse group of students such as culture, language and motivation. Rufai analyzed the nature of excellence in relation to standards, quality, achievement and success.

On the contrary, [26] stated that there was no significance between teachers' competence in urban and rural areas. In brief, teachers' competencies are not affected by the demographic factors between urban and rural schools but it does involve teachers' intrinsic factors. A competent teacher can master the skills in any field he or she teaches. Therefore, teachers need to equip themselves with a variety of skills apart from their teaching skills like managing, leading, communicating effectively with other teachers, solving problems and having a high work ethic [27]. Therefore, a competent and capable teacher with a variety of skills will not only be capable of resonating excellent teaching but will also possess strong self-esteem, adherent to the principles of hard work and good judgment in the school community [28]. An emphasis is also placed upon the importance of developing personal skills as a teacher, which will motivate them when teaching and enhance their understanding of how students benefit when they impart the required skills [29].

Figure 2 illustrated the theoretical framework of this study. The three basic components selected for this study are knowledge, skills and professionalism. This model describes that the components of knowledge and skills are needed to perform tasks effectively, while professionalism determines competency. These three components were measured to determine the current level of teachers' competencies. However, due to the lack of prior information on teachers' competence in Business Studies in Malaysia, this study was conducted to measure the competencies of teachers in fulfilling their responsibilities in education.

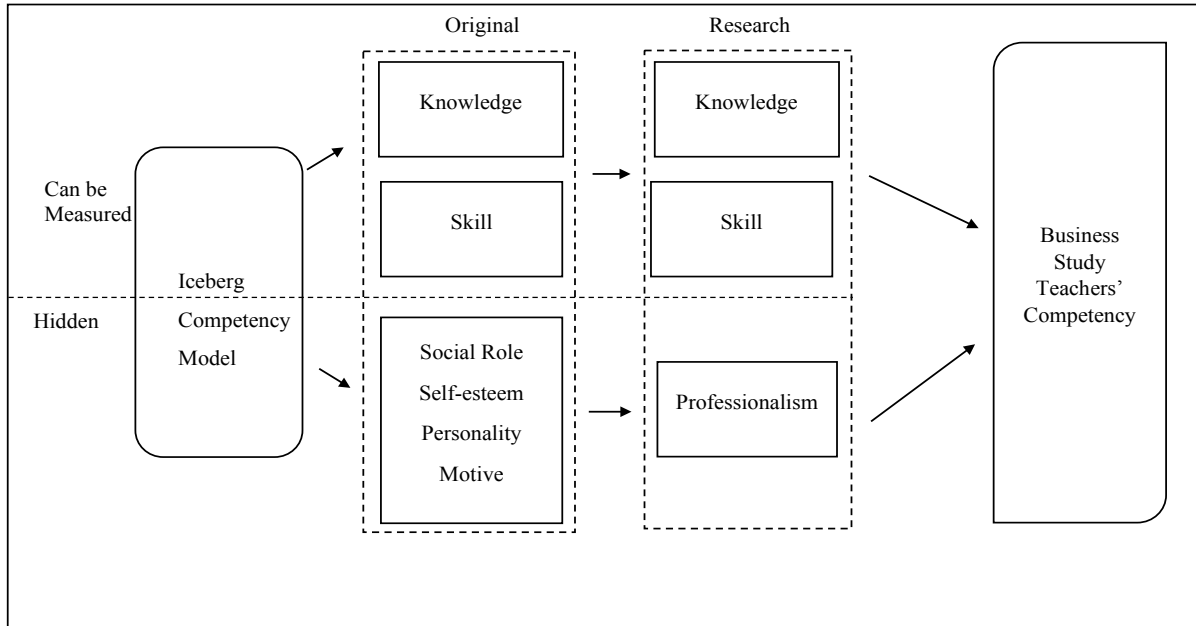


Figure 2. Theoretical Framework

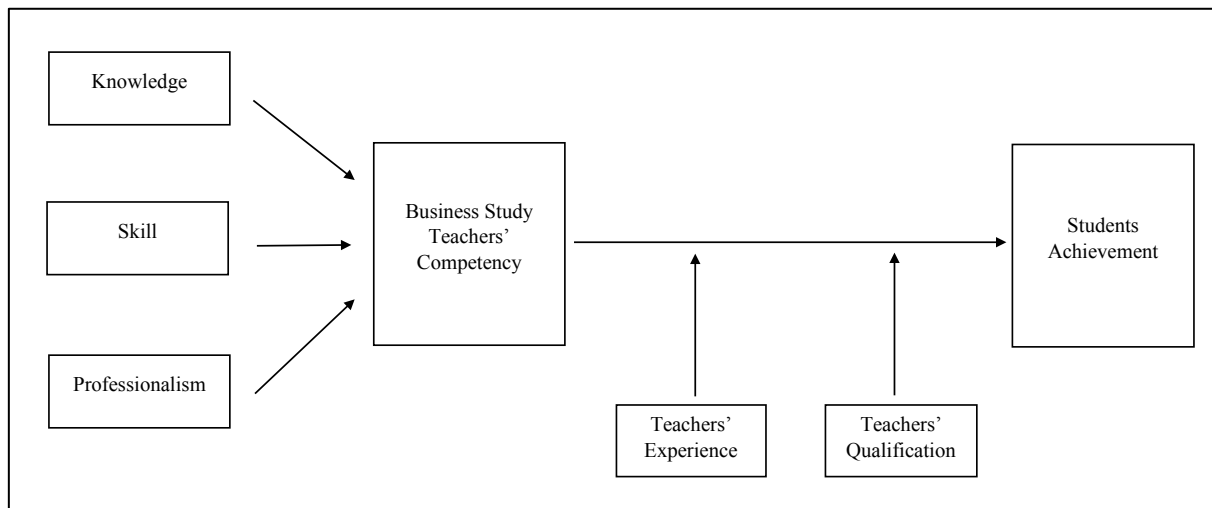


Figure 3. Conceptual Framework

The conceptual framework depicted in Figure 3 was established by the researcher in an attempt to study the relationship between the three domains suggested in the Iceberg Competency Model and Malaysian Teachers' Standard (*Standard Guru Malaysia - SGM*) with the competency in Business Studies. Based on previous studies, teacher's competence in Malaysia and overseas in the selected domains proved the fulfillment of their educational responsibilities. Hence, this study adapted to instruments from previous studies based on the literature review of teacher competence after acquiring permissions from the researchers through electronic mail. The adapted instrument was used to study what role these domains play in determining the students' academic achievement. In addition, teaching experience and teacher qualifications were also assessed as moderating factors in this study.

2. Methodology

2.1. Research Design and Method

Researchers used questionnaires to collect data and information in a short period of time. The questionnaire is generally a practical and effective benchmark for this study, especially as it was involved a large population. The data was collected based on the questionnaire and the findings of this study helped to achieve the objectives of the study. The process of designing the questionnaire should be carefully carried out because poor design will result in invalid and meaningless findings [30]. A good questionnaire can effectively measure and collect data and

thus answer the research questions. In this study the items from the questionnaires were as follows.

Table 1. Components of questionnaire

Sections	Aspects	No. of Items
A	Respondent's Demography	8
B	Teachers' Knowledge Competency	20
C	Teachers' Skills Competency	39
D	Teachers' Professionalism Competency	25
	Total Items	92

There were total 92 items in this questionnaire. Out of these, 84 items were used to measure the competency of the teachers while 8 items were used to gather demography information about respondents.

2.2. Populations and Sample

In this study, the study population referred to all Form Six teachers who were teaching Business Studies either in high school or Form Six colleges. The focus was placed only on three states located in the Northern Zone of Peninsular Malaysia, namely Perlis, Kedah, and Penang. The teacher population is presented in Table 2 below.

Table 2. Population list for this study

No.	States	Business Studies Teachers
1	Perlis	11
2	Kedah	86
3	Penang	58
	Total	155

There were more teachers in Kedah compared to Perlis and Penang due to the vast area of the state. Besides, the teacher population tasked with teaching this subject was heavily concentrated in areas of large numbers of schools. In contrast, not all schools offered Business Studies in their schools, resulting in the small number of participating teachers.

Random sampling techniques were used in this study, whereby each population designed in the sampling frame had an equal opportunity to be selected as a sample. According to [31], random sampling in a population serves to give equal opportunity to the respondents to be selected in a prospective study. Therefore, this accounted for the number of schools and colleges located in the three states in the northern zone. The rationale for this method was to ensure all necessary information was obtained based on the research questions as the sample consisted of Form Six teachers who were teaching the subject of Business Studies. Moreover, the sample selection was undertaken based on the table of sample sizes proposed by [32]. The sample sizes were shown in Table 3 below according to state.

Table 3. Samples for this study

No	States	Business Studies Teachers	Samples
1	Perlis	11	11
2	Kedah	86	72
3	Penang	58	52
	Total	155	135

According to [32] table, the sample size was determined according to the state so that all three were sufficiently represented by teachers teaching the subject and showed a high confidence level.

2.3. Research Procedure

Relevant data were collected from 135 teachers from the three northern states using a set of questionnaires. The recruited teachers comprised of pre-U teachers teaching Business Studies either in schools or pre-U colleges. The data collected was analyzed by using the Statistical Packaging for Social Science (SPSS) version 24. Linear regression analysis was employed to assess the relationship between teacher knowledge, skills and professionalism towards students' academic achievement. Macro PROCESS analysis developed by [33] version 3.4 is a measuring instrument for testing intermediary variables and moderators. In this study, it was used to examine teachers' qualification and experience as a mediator variable on the relationship between teacher competence with students' academic achievement for Business Studies. Students' academic achievement was measured based on the STPM results obtained by the schools from 2013-2018. The summary of the result was presented in table 4 below.

Table 4. Schools' STPM Marks

	Minimum	Maximum	Mean	SD	Interpretation
STPM Marks	37.50	100.00	75.91	13.41	Excellent

Note: SD = standard deviation, mean > 40 = excellent, mean 25 – 39 = good, mean < 25 = fail

3. Results

Research Question 1: What are the indicators of the teachers' competence?

All three factors yielded high scores in the study. A majority of the teachers agreed that knowledge was an important factor for a teacher to possess to ensure smoothness in the teaching and learning process with a min score of between 3.36 - 4.00. Next, the skill of a teacher was also identified to be an important factor to help students achieve greater heights in their examination. A skilled teacher is able to present his/her learning confidently. The min value recorded for skills was 3.73 –

3.98. As for the last factor, professionalism, the min value that was achieved was between 3.74 – 4.05. Most of the teachers agreed that a quality teacher should possess positive attitudes in order to educate the students.

Research Question 2: What is the competency level of the teachers towards students' academic achievement?

The mean score recorded for knowledge indicated a high level of knowledge competency (mean value = 3.83 ± 1.17) among the teachers. A total of 74.8% of the 101 respondents exhibited high levels of knowledge competency. Only 11 respondents (8.1%) demonstrated low levels of knowledge competency while 23 (17.1%) were moderate. Meanwhile, the mean scores for skills were high (mean value = 3.84 ± 1.27). A total of 104 respondents (77.0%) demonstrated a high level of skill competence. However, 12 respondents with 8.9% showed a low level of proficiency, while 19 (14.1%) possessed a moderate level of knowledge competency. Finally, the mean score for professionalism indicated the highest level of competency (mean value = 3.93 ± 1.27) than that of knowledge and skill. A total of 77.0% (n = 104) respondents indicated high levels of professionalism. Only 14 respondents (10.4%) demonstrated low professionalism, while 17 (12.6%) had a moderate level of professionalism.

Research Question 3: Do teachers' knowledge, skills and professionalism influence students' academic achievement?

As for the third research question, the matched pair sampling technique was used to determine the relationships between the variables in the study. This method was employed because some of the schools had more than one teacher and their competencies cannot be analyzed separately. Therefore, pairwise matching sampling was utilized to indicate significant relationships among the study variables. In this study, there were a total of 64 schools, so, the total number of match set was 64 pairs. Regression analysis was employed to test this research question which involves the following regression models:

$$\hat{Y} = i_y + b_1X_1 + b_2X_2 + b_3X_3$$

X_i is the independent variable of measure, while b_i is the regression coefficient for each variable. In this study, there were 3 independent variables namely teacher's knowledge (X_1), teacher's skills (X_2) and teacher's professionalism (X_3). Based on the SPSS data analysis, all three predictor variables were identified as factors contributing to students' achievement in the subject of Business Studies. The overall p-values were significant in this study (p-value = 0.036, p <0.05). The formula employed in this study is as follows:

$$\text{Model 1: } F(3,60) = 3.04, p <0.05$$

which showed that teachers' knowledge, skills and professionalism were influential factors in students' academic achievement. Moreover, the R square value indicated a moderate relationship with student achievement level where teacher competence level at about 13.2% in changing students' achievement level. This value was considered modest but still played a role in determining student achievement levels. As a conclusion, this study proved that other factors are also involved in the measurement of student achievement levels along with knowledge, skills and professionalism of teachers.

Research Question 4: Do teachers' qualification and experience act as intermediate variables for the relationship between teachers' competency and students' academic achievement?

This research question examined the relationship of teacher's eligibility and teaching experience as mediating variables in the relationship between teachers' knowledge, skills and professionalism towards students' academic achievement. In order to answer this question, the PROCESS software (version 3.4) developed by [33] was utilized. This software is particularly suited to break down the interstitial relationships with the dependent variables and the independent variables in a detailed manner.

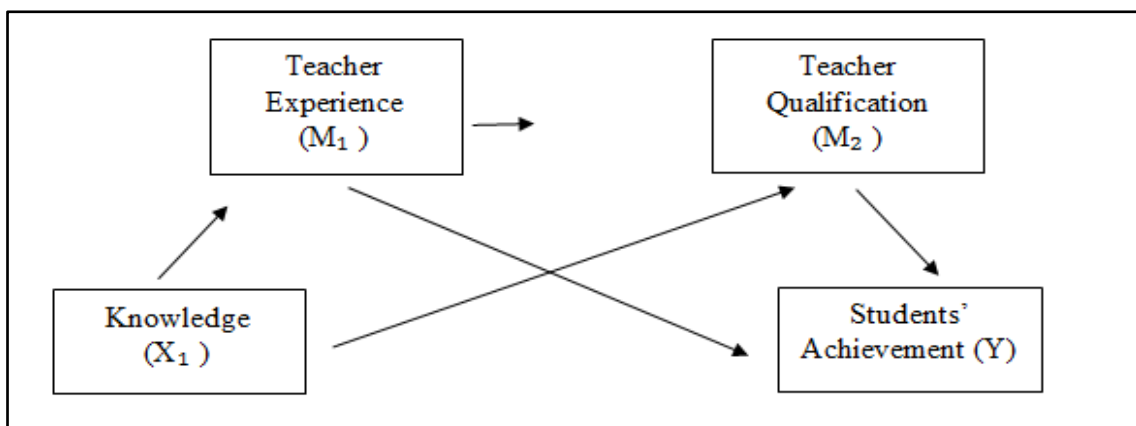


Figure 4. Conceptual diagram indicating the relationship between knowledge and students' achievement with teaching experience and teacher eligibility as mediators.

As proposed by Hayes (2017), model 6 was used to identify the role of intermediaries (a study with 2 intermediaries) in independent and dependent variable relationships. There were 3 independent variables in this study namely teacher's knowledge, skills and professionalism labelled as X_1 , X_2 and X_3 , respectively, while the dependent variable was the student achievement (Y). The mediators or intermediaries were labeled as M_1 for the teaching experience and M_2 for teacher's qualification. Samples were shown as in figure 4.

Table 5. Indirect effect under TOTAL Items in PROCESS analysis

No	Independent Variable	Indirect Effect
1	Teacher's Knowledge	0.389
2	Teacher's Skills	-0.753
3	Teacher's Professionalism	-0.669

Table 5 showed indirect effect between independent variables and dependent variable. The number of indirect effects under the TOTAL items in the PROCESS analysis was estimated at 0.389 for teacher's knowledge, summarizing the effects of intermediaries on the independent and dependent variables in this study. Hence, it can be concluded that the two mediating factors namely teacher experience and teacher qualification, did not influence the factor of teacher's knowledge on students' achievement.

Meanwhile, the number of indirect effects under the TOTAL items in the PROCESS analysis shows a reading of -0.753 for teacher's skills that concluded the intermediaries did not affect the relationship between teacher skills and student achievement. Hence, the two intermediary factors namely the teaching experience and teacher qualification did not influence the teacher's skill on students' achievement in Business Studies.

As for professionalism factor, the number of indirect effects under the TOTAL items in the PROCESS analysis showed a reading of -0.669 which concluded that the mediating effect of independent and dependent variables in this study was negative and implied that the mediation effect was considered not affecting teacher professionalism and student achievement. It can be concluded that, two mediating factors, namely, teacher experience and teacher qualification, did not influence the professionalism of teachers on student achievement in the subject of Business Studies.

Therefore, this study demonstrated that the teacher's experience and qualification do not act as intermediate variables in determining the relationship between the teacher's competence and students' achievement.

4. Discussions

In conclusion, the findings of this study indicated the

strength of teachers' knowledge, skills and professionalism as the variables. All three components of a teacher's competency were positively significant towards the students' achievement but on a weak to modest scale. Moreover, the teacher's experience and qualifications were not deemed as mediating factors in the relationship between a teacher's competence and students' academic achievement. This result is in line with the findings of earlier research done by past researchers who reported that teacher's experience and qualification do not mediate the relationship of the teacher competence and students' academic achievement [34, 35, 36 and 37]. All three components demonstrated no significant relationship with students' academic achievement separately, but overall teachers' competencies were positively related indicating moderate relationships. Teacher possessing extensive knowledge of the subject (Business Studies) did not determine the students' examination grade alone. Same went for teachers' skills in this subject although teachers were required to have general skills in the teaching and learning process along with specific skills in the business world to enhance the knowledge dissemination but that alone did not act as a determining factor in students' learning. Moreover, this study also proved that the level of teacher professionalism was also not a measure of academic success of a student although the teacher was a professional in carrying out their duties and responsibilities to educate the students to be useful and ethical.

On the other hand, this study identified a moderate relationship between teacher competence and student achievement. It also suggested that there were other factors involved in determining students' achievement level. Among the factors that can contribute including the internal factors of the students themselves such as interest, motivation and attitude, along with the external factors such as school climate, peers, parents and interferences. Such interference includes mass media, social media and other factors that may lead to instability in students' achievement in Business Studies.

5. Conclusions

In conclusion, a teacher's competency is significant towards students' academic achievement in the subject of Business Studies. The relationship is positively significant at a moderate rate. Besides, a teacher's experience and qualifications cannot be considered as intermediate factors determining the relationship between a teacher's competence with students' achievement. It is possible that other factors such as technology [38], social media [39] and principals' leadership [40] may play a more important role in measuring the students' achievement in this subject.

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