Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.9, No.8, 2018

The Correlation Between Student-Teacher Rapport, Student Academic Achievement and Post-Graduation Plan

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Abstract
This descriptive correlational study examined the impact of student-teacher rapport in relation to student academic achievement and post-graduation plans and was modelled after a study by Clark (2014). Ninety-seven Malaysian polytechnic business students from three academic programs completed the Student-Teacher Relationship Scale (STRS) developed by Dr. Robert C. Pianta. The STRS inventory consists of 28 items that measure aspects of the relationship between the student and teacher and has three subscales (Conflict, Closeness and Dependency). Students' self-reported Cumulative Grade Point Average (CGPA) was used as the measure of academic achievement. Data were analysed using descriptive and correlational analyses to determine whether or not student-teacher rapport significantly impacted academic achievement and post-graduation plans. Pearson Correlation analyses showed that the effect of student-teacher rapport on students' academic achievement and post-graduation plans was not statistically significant. The results also revealed very low correlations between student-teacher rapport and post-graduation plans for all academic programs. Low negative relationships were also found between student-teacher rapport and academic achievement for 2 academic programs, namely Diploma in Accountancy and Diploma in Business Studies. The results of this study pave the way for future research on student-teacher rapport and its effect on Malaysian polytechnic students' academic achievement and post-graduation plans.
Keywords: Student-Teacher Relationship Scale, Academic Achievement, Post-Graduation Plans

1. Introduction

Past research has shown that positive relationships between teachers and students contribute to students' academic success. Hamre and Pianta (2001) described a positive teacher-student relationship as one that exhibits closeness, warmth and positivity. Cabellero (2011) meanwhile stated that a positive relationship between teachers and students not only influenced academic achievement but also created an enjoyable learning environment. As argued by Maslowski (2003), a classroom environment depends heavily on the relationship between teachers and students. Findings by Montalvo, Mansfield, and Miller (2007) supported the notion that students achieved better grades when taught by teachers they liked.

This study was conducted with the primary aim of investigating the impact of student-teacher rapport in relation to student academic achievement and post-graduation plans. Ninety-seven business students of a Malaysian polytechnic were chosen as respondents for this quantitative survey. Data was collected using the Student-Teacher Relationship Scale (STRS) inventory developed by Dr. Robert C. Pianta. Students' academic achievement was based on their self-reported Cumulative Grade Point Averages (CGPA). The research design employed for this study was a descriptive correlation design study.

2. Literature Review

2.1 Factors Affecting Students' Academic Achievement

Researchers have investigated a host of factors that might have contributed to students' academic achievement. Some of the factors included the students' social-economic background (e.g. Walters and Soyibo, 1998), gender (e.g. Kanagi, Hee, Kanawarthy, Soon, Kamaludin, & Khezrimotlagh, 2015), entry qualification (e.g. Opoko, Alagbe, Aderonmu, Ezema, & Oluwatayo, 2014), teacher quality (e.g. Alos, Caranto, & David, 2015), learning environment (e.g. Mushtaq & Khan, 2012), motivation (e.g. Hancock, 2001), learning styles (e.g. Zainol Abdin, Razaee, Abdullah, & Singh, 2011) and stress/anxiety (e.g. Elias, Ping, & Abdullah, 2011). Other studies found in literature investigated the link between academic achievement and personality traits (e.g. Hakimi, Hejazi, & Lavasani, 2011), class size (e.g. Bandiera, Larcinese & Rasul, 2008)) and satisfaction (e.g. Lim, Kim, Chen, & Ryder, 2008).

Walters and Soyibo (1998) stated that high school students' level of achievement was linked, amongst others to their gender and social economic background. A local study at Universiti of Malaya by Kanagi et al. (2015) of business students however found that gender was not a significant variable that affected first year students' academic achievement. Their findings showed that entry qualification was the main factor that contributed to academic achievement. A study of architecture students in Nigeria meanwhile found no correlation between entry qualification and academic performance of students (Opoko, Alagbe, Aderonmu, Ezema & Oluwatayo, 2014).

In another study of business students, factors influencing students' academic achievements were lecturer competence, teaching methods and quality of learning materials (Ganyaupfu, 2013). Similar findings were obtained by Alos, Caranto and David (2015) where a study of nursing students indicated that perceived teacher-related factors (e.g. teachers' mastery of the subject matter) had the most impact on academic achievement as compared to other factors (such as study habits, and home or school-related aspects). This finding is supported by another study of nursing students where teaching and learning related factors were found to influence the academic achievement of students (Pinehas, Mulenga & Amadhila, 2017). Another study by Mushtaq and Khan (2012) of college students revealed that communication, learning facilities, proper guidance and family stress affected the student performance.

A local study by Zainol Abdin, Razaee, Abdullah and Singh (2011) of 317 students that investigated the relationship between learning styles and overall academic achievement found a significant relationship between overall academic achievement and learning styles. The study also found that students maintained the same learning styles for different subjects. Another local study investigated the stress and academic achievement of undergraduate students attending different academic programs (Elias, Ping & Abdullah, 2011). The findings of the study revealed that medical students exhibited the highest stress level and the latter had a significant but weak negative relationship with academic achievement. Hakimi, Hejazi and Lavasani, (2011) in a study of 285 Iranian undergraduates meanwhile discovered that personality traits were significantly related to academic achievement. However their investigations revealed that gender was not significantly related to academic achievement. Other researchers like Bandiera, Larcinese and Rasul (2008) investigated the effect of class size on student performance and found that increasing the class size negatively affect student achievement. Academic achievement was also strongly related to students' satisfaction as shown by a study in Somalia of 133 university students (Dhaqane & Afrah, 2016).

2.2 Student-Teacher Relationship and Academic Success

Studies that examined student-teacher rapport/relationship and their effect on academic achievement have been conducted by many researchers. (e.g. Lee, 2007; Nugent, 2009; Cabellero, 2011; Adeyele & Yusuff, 2012) but have produced mixed results with varying degrees of association. For example, Fan (2012) used a sample of 1954 students to investigate teacher-student interpersonal relationship with students' academic achievement in social studies and found a significant relationship between these two variables. Roorda, Koomen, Spilt and Oort (2011) used a meta-analytic approach to investigate the associations between affective qualities of student-teacher relationships and students' school engagement and achievement. Their findings, based on 99 previous studies of preschool to high school students revealed that the association of student-teacher relationships with respect to student's achievement were small to medium. Other studies that have shown positive correlation between student-teacher relationships and academic achievement were by Alexander, Entwisle, and Horsey (1997), Gunuc (2014) and Krstic (2015).

Some studies, however could not find a significant relationship between student-teacher rapport and academic achievement. A study of 182 students of a high performing and a low performing high school by Nugent (2009) showed a weak positive correlation between teacher-student rapport and overall GPA. However, the study found a positive significant relationship between teacher-student rapport and motivation. Similarly, a recent study by Mabin Jr. (2016) using a sample of more than 3000 high school students did not show significant findings in the correlation between student-teacher rapport (e.g. a caring teacher) and academic achievement. A few studies on older students also did not indicate a significant correlation between student-teacher rapport and academic achievement. Bin Abdulrahman (2007), for example found no correlation between medical student academic grades and their views on their relationship with their teachers while Nyadanu, Garglo, Adampah, and Garglo (2015), using a sample of nursing students only found a weak correlation between student-teacher rapport and academic performance.

A number of studies investigated the influence of teacher gender on student-teacher relationship. Winters, Haight, Swaim and Pickering (2013) found that female students had better academic achievement when taught by female teachers and male students performed better when taught by male teachers. However studies carried out by Chudgar, and Sankar (2008), Driessen (2007) and Martin and Marsh (2005) found no evidence to support the influence of teacher gender on students' academic achievement. The varied findings of student-teacher rapport and its effect on academic achievement from past studies indicate that there are other influencing factors as mentioned previously.

2.3 Student-Teacher Relationship Scale (STRS)

The Student-Teacher Relationship Scale (STRS) is a self-report instrument designed to measure a teacher's perception of his or her relationship with a particular student. It was initially developed to be used with preschool and primary school children (Pianta, 2001) but has now been adapted for older students (e.g. Hunter, Brinkworth, and Harris, 2012; Clark, 2014; Higgins, 2015). Consisting of 28 items, this instrument measures three factors

identified as Conflict (12 items), Closeness (11 items), and Dependency (5 items). It also measures the overall quality of the relationship by using the following formula: Total Score = (72 − Conflict) + Closeness + (30 − Dependency) (Pianta, 2001). Each item is evaluated on a 5-point Likert scale from 1 (i.e. definitely does not apply) to 5 (i.e. definitely applies). The 'conflict' dimension measures the teacher's feelings of negativity and conflict with the student (e.g. "This child and I always seem to be struggling with each other"). The 'closeness' dimension measures the teacher's perceived affection, warmth, and open communication with a particular student (e.g. "I share an affectionate, warm relationship with this child"). The 'dependency' dimension meanwhile measures a teacher's overall view of his or her relationship with a student as overly dependent on him or her (e.g. "This child is overly dependent on me") (Pianta, 2010). The total score ranges from 28 to 140 where higher scores indicate higher relationship quality i.e. a relative lack of conflict, lower dependency, and higher closeness (Pianta, 2001). For the purpose of this study, the statements in the items were modified to seek students' perception of their relationship with their lecturers as opposed to lecturers' perception of their relationship with students. Studies that have used this approach included those by Clark (2014) and Longobardi, Gastaldi, Prino, Pasta, and Settanni (2016).

3. Statement of Problem

According to Freeman, Anderson and Jensen (2007) the quality of student-teacher relationship tend to decline as students continue their education at higher levels. Most research on student-teacher relationship focused on elementary school students (e.g. Gregory & Weinstein, 2004; Demirkaya & Bakkaloglu, 2015) compared to middle, high school and college students (e.g. Dika & Singh, 2002; Martin & Marsh, 2005). Developing a positive student-teacher rapport for older students is important because it can influence the students' decision whether to further their studies or otherwise. A sizeable body of literature regarding studies on student-teacher rapport had indicated that these studies took place overseas and a few that had been conducted in Malaysia (e.g. Ahmad & Sahak, 2009; Jasmi & Lim, 2014; Hassan, Md. Jani, Mat Som, Abd Hamid & Azizam, 2015) did not specifically examine the effect of student-teacher rapport on academic achievement and post-graduation plans. Thus this study was carried out to add a new dimension to the body of literature regarding student-teacher rapport and its effect on Malaysian polytechnic students' academic achievement and post-graduation plans.

4. Objectives of the Study

The primary aim of this study was to determine if students' perceptions of their rapport with their lecturers had any effect on their academic achievement and post-graduation plans. The research questions guiding this study were:

a) What is the nature and strength of the relationship between student-teacher relationship level and academic achievement?
b) Is there a significant correlation between student-teacher relationship and students' academic achievement?
c) What is the nature and strength of the relationship between student-teacher relationship level and students' post-graduation plans?
d) Is there a significant correlation between student-teacher relationship and students' post-graduation plan?

5. Methodology

5.1Participants

Participants of this study consisted of 97 business students of a Malaysian polytechnic pursuing three academic programs (Accountancy, Business Studies and Marketing). These students were either in their third or fourth semester of a six semester Diploma level-program.

5.2Measures

This study used a quantitative survey method for data collection and consisted of two parts. Part A of the questionnaire gathered the student's demographic information such as gender, semester of study, CGPA and post-graduation plan. The students' post-graduation plans were categorized into four options: i) continue studies full time, ii) work, iii) work and continue studies part-time, and iv) undecided. Part B of the questionnaire consisted of 28 items of the STRS inventory where each item was evaluated on a 5-point Likert scale from 1 (i.e. definitely does not apply) to 5 (i.e. definitely applies). The total score measured each student's perception of his or her relationship with his or her lecturers with respect to the conflict, closeness and dependency scores. The maximum total scores of the STRS inventory was 140.

The Cronbach alpha consistency coefficient for the whole scale was 0.82 while for the three subscales of conflict, closeness and dependency, the alpha values were 0.73, 0.78 and 0.76 respectively. According to George and Mallery (2003), alpha values between 0.7 and 0.8 are considered good and acceptable.

5.3Data Collection Procedure
The STRS questionnaires were distributed to the students during normal lecture hours which took about twenty minutes to complete. The questionnaires were then collected in-situ, giving a one-hundred percent response rate.

6. Data Analysis Procedure
Both descriptive and inferential statistics were used to analyse the collected data using the Statistical Package for the Social Sciences (SPSS) program version 20.0 for Windows. Frequency scores were obtained for CGPA and post-graduation plans for all three academic programs. Total mean scores and mean scores (for subscale categories of the STRS) were also calculated for each academic program. Pearson Product Moment Correlation analysis was conducted to determine if correlation existed between the STRS scores and i) students' CGPA scores, and ii) post-graduation plans.

7. Results
7.1Descriptive Statistics
A total of 97 students from 3 different academic programs participated in this study. The CGPA of the students are tabulated in Table 1. None of the student reported having CGPA of less than 2.0. For Diploma in Marketing students, almost 67 % reported having a CGPA of between 2.0 and 3.0. Similarly for Diploma in Business Studies program, more students (77 %) reported having a CGPA of between 2.0 and 3.0 as compared to their colleagues (23 %) who reported having a CGPA of more than 3.0. However for the Diploma in Accountancy program, 73 % of the students achieved a CGPA of 3.0 or more whilst the rest (27 %) reported having a CGPA between 2.0 and 3.0.

Table 1. Cumulative Grade Point Average (CGPA)

Academic Program	CGPA		
	< 2.0	2.0 <CGPA < 3.0	> 3.0
Marketing (n = 36)	-	24 (66.7 %)	12 (33.3 %)
Accountancy (n = 26)	-	7 (26.9 %)	19 (73.1 %)
Business Studies (n = 35)	-	27 (77.1 %)	8 (22.9 %)

Table 2 shows the students' post-graduation plan where the latter is categorized into 4 sub-plans: i) continue studies, ii) work, iii) work and study, and iv) undecided. For all 3 academic programs, more than one-third of the students indicated their intention to join the workforce after graduating.

Table 2. Post-Graduation Plan

Academic Program	Post-Graduation Plan			
	Continue Studies (full-time)	Work	Work and Continue Studies (part-time)	Undecided
Marketing (n = 36)	10 (27.8 %)	13 (36.1 %)	8 (22.2 %)	5 (13.9 %)
Accountancy (n = 26)	6 (23.1 %)	12 (46.2 %)	7 (26.9 %)	1 (3.8 %)
Business Studies (n = 35)	8 (22.9 %)	11 (31.4 %)	10 (28.6 %)	6 (17.1 %)

Table 3 summarizes the STRS subscale and total mean scores according to program of study. Scores for STRS range from 28 to 140 and according to Pianta (2010), higher scores indicate higher levels of closeness and lower levels of conflict and dependency. From Table 3, it can be seen that the total mean STRS scores range from 72.22 to 77.38. This indicate a moderate relationship between the students and their lecturers.

Table 3. Mean Score of STRS

Academic Program	Subscale Categories Mean Score			Total Mean Score
	Conflict	Closeness	Dependency	
Marketing (n = 36)	19.28 (SD = 5.01)	40.81 (SD = 6.42)	12.14 (SD = 2.82)	72.22 (SD = 9.57)
Accountancy (n = 26)	22.00 (SD = 9.60)	41.31 (SD = 6.83)	14.08 (SD = 3.39)	77.38 (SD = 15.17)
Business Studies (n = 35)	20.80 (SD = 7.31)	36.40 (SD = 5.48)	12.94 (SD = 3.12)	74.17 (SD = 10.95)

7.2 Inferential Statistics
A two-tailed Pearson bivariate correlation was conducted to determine if a correlation existed between the STRS scores and students' CGPA scores (Table 4). A negative Pearson correlation value (r) was found between the students' STRS scores and CGPA for 2 academic programs, namely Diploma in Accountancy and Diploma in Business Studies. A negative r - value indicates an inverse relationship i.e. low STRS scores result in high CGPA scores. The strength of the correlation was based on the absolute value of r as suggested by Evans (1996). The correlation analysis also revealed that the effect of student-teacher rapport on students' academic

achievement was not statistically significant ($p > .05$).

Table 4. Correlations between STRS Scores and CGPA

Academic Program	*r*	*p*-value	Strength of Correlation
Marketing (n = 36)	.271	.110	Low
Accountancy (n = 26)	-.008	.971	Very low
Business Studies (n = 35)	-.141	.419	Very low

Results of the correlation between students' STRS scores and post-graduation plans are shown in Table 5. All three programs show a positive Pearson *r* correlation value. From Table 5, all *p* values were greater than .05 which indicate a non-statistical significant relationship between student-teacher rapport and students' post-graduation plans.

Table 5. Correlations between STRS Scores and Post-Graduation Plans

Academic Program	*r*	*p*-value	Strength of Correlation
Marketing (n = 36)	.080	.643	Very low
Accountancy (n = 26)	.264	.192	Low
Business Studies (n = 35)	.134	.443	Very low

8. Discussion and Conclusions

The primary objectives of this study were to investigate the nature and strength of student-teacher relationship/rapport and whether student-teacher relationship/rapport had any effect on academic achievement and post-graduation plan. The three sub-scales in the STRS inventory used in the study were 'closeness', 'conflict', and 'dependency'. These three sub-scales, respectively describe feelings of affectionateness, confrontational attitude and overreliance in a student-teacher rapport.

In investigating the strength of the student-teacher rapport, the results of this study showed the existence of a moderate relationship as indicated by the total mean scores of the STRS inventory. A correlational analysis also revealed that the effects of student-teacher relationship on students' academic achievement were minimal and statistically were not significant ($p > 0.05$). The results of this study mirrored that of Clark (2014) where the existence of a student-teacher relationship was found but did not correlate significantly with the students' academic achievement. Correlations of -.008 and -.141 (Table 4) represented very weak negative relationships between STRS scores and CGPA scores for Accountancy and Business Studies students. This could possibly be explained by the fact that the learning environment and academic instructions in polytechnics are different from schools in the sense that there are limited interaction with lecturers. According to Hagenauer and Volet (2014), "teaching settings tend to be more fragmented at university, with less frequent interactions between teachers and students". Ang (2005) argued that the dimension of 'dependency' is more relevant to younger students compared to older students (i.e. college or university students) because the latter are more independent learners. Freeman, Anderson and Jensen (2007) also mentioned that the quality of student-teacher relationships tend to decline as students continue their studies at higher levels. As mentioned in the literature review, students' academic achievement could be attributed to other factors besides their relationship with their teachers/lecturers.

As for the post-graduation plans, the results of this study showed very weak correlation between post-graduation plans and student-teacher rapport and were not statistically significant. This could possibly due to the nature of the relationship between lecturers and students where the latter are more independent as indicated by the low 'dependency' scores on the STRS. In higher education settings, such as the polytechnics, academic instructions and deliveries arguably take precedence over other non-academic matters. Furthermore the students are already taking specific courses, presumably because of initial interests to work in the relevant fields. Nonetheless, according to Pascarella and Terenzini (2005), student-teacher rapport is an important influence on the attitudes, interests and values of college students. This is supported by O'Connor, Dearing and Collins (2011) who stated that students' academic outcomes and eventual employment are greatly influenced by the support given by their teachers. Schneider (2006) also proposed that students are exposed to the world of work because they may have limited understanding of the academic qualifications required for particular jobs. Thus polytechnic lecturers should promote and engage students in career exploration activities that increase the latters' knowledge about their career opportunities.

9. Recommendations for Further Research

This study could be further expanded by having a bigger sample of participants including students from other academic programs such as engineering and tourism/hospitality. In the present study, only two co-variables were investigated: i) CGPA, and ii) post-graduation plans. Future investigation of student-teacher rapport could include other co-variables such as student and lecturer gender, and low and high achievement students.

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