Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.8, No.6, 2017

Teacher-Student Relationships, Satisfaction, and Achievement among Art and Design College Students in Macau

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Abstract
A number of studies have found that teacher-student interaction plays a significant role in student learning and in the quality of teaching. A number of studies have found that teacher-student interaction plays a significant role in student learning and in the quality of teaching. However, studies of teacher-student interaction on art and design college students are missing. As a result, The purpose of the current study is to investigate the relationships among students' perceptions of instructor-student interactions, students' satisfaction, and students' achievement outcomes. The sample for the current study consisted of 104 second-year art and design students from five sections of an Introduction to Animation course in Macau. The present study found support for associations between specific teacher-student relationships, levels of student satisfaction and engagement, and academic performance. Based on a stepwise regression analysis, however, *strict* was the sole predictor of academic performance (with stricter teacher behavior leading to lower student performance), and only 8% of the variance in academic performance could be explained by our model. Limitations and suggestions were also discussed.
Keywords: teacher-student relationship, satisfaction, Macau

1. Introduction

It is generally expected that teachers should establish a rapport with their students, not least because the creation and maintenance of a positive classroom climate plays a pivotal role in rendering teaching and learning processes more effective and efficient (Fraser, Aldridge, & Soerjaningsih, 2010). A number of studies have found that teacher-student interaction plays a significant role in student learning and in the quality of teaching (Fraser et al., 2010). In secondary-school chemistry classes in Singapore, where girls rated teacher behavior more favorably than boys did, there were significant and positive correlations between enjoyment of chemistry and teacher behaviors described as understanding, helpful, and friendly (Lang, Wong, & Fraser, 2005). Maulana, Opdenakker, den Brok, and Bosker's (2011) research on Indonesian students in grades seven through nine found moderate correlations between the interpersonal behavior of teachers and student motivation; and another Indonesian study (Fraser, Aldridge, & Soerjaningsih, 2010) reported that, among university students, there was a positive link between positive teacher-student interactions and improved student achievement and attitudes. Kyriakides's (2005) multilevel analyses of a Cypriot primary school revealed that students' ratings of their teachers' behavior were positively correlated to gains in both the cognitive and affective outcomes of schooling, as well as achievement.

2. Questionnaire on Teacher Interaction (QTI)

The Questionnaire on Teacher Interaction (QTI; Wubbels, Brekelmans, & Hooymayers, 1991) has been a popular instrument for collecting data on both teachers' and students' perceptions of the teacher-student relationship (Wubbels & Brekelmans, 2005). It is based on the Model for Interpersonal Teacher Behavior (MITB; Leary, 1957), and comprises two dimensions: *Influence* (Dominance-Submission) and *Proximity* (Opposition-Cooperation). These two dimensions can be further elaborated into eight components of teacher behavior: *Leadership*, *Helpful/Friendly*, *Understanding*, *Student Responsibility and Freedom*, *Uncertain*, *Dissatisfied*, *Admonishing*, and *Strict*.

The 77-item QTI was originally developed in the Netherlands (Wubbels, Brekelmans, & Hooymayers, 1991), and was answered using a five-point Likert scale ranging from 1 ="Never/Not at all" to 5 ="Always/Very." A 64-item American version was constructed in the same year (Wubbels & Levy, 1991), and a more economical 48-item version was later developed in Australia by Fisher, Fraser, and Cresswell (1995). A number of studies have confirmed that the reliability and validity of the 48-item Australia version of the QTI are satisfactory (Britt, 2013; Fraser et al., 2010; Nugent, 2009).

In various countries, the QTI has served as an important tool for examining the relationships between teacher-student interaction and other variables: for example, Italian secondary-school students' motivation and academic achievement (Passini, Molinari, & Speltini, 2015), Hong Kong secondary students' cognitive, affective, and moral outcomes (Sivan & Chan, 2013), Turkish students' attitudes towards science (Telli, den Brok, & Cakiroglu, 2010), and gifted Singaporean students' attitudes toward chemistry courses (Lang et al., 2005).

Wubbels and Brekelmans's (2005) literature review of teacher-student relations indicated that the more teachers were perceived as cooperative, the higher their students scored on cognitive tests; however, this

relationship between proximity and cognitive outcomes is not straightforward, and can be seen as curvilinear rather than linear (p. 13). From the affective perspective, the greater their perception of proximity, the higher students' motivation is, and generally, the effects of proximity are somewhat stronger than the effects of influence (p. 14). In addition, learning activities are some of the most important mediating factors between students' outcomes and their perceptions of their relationships with teachers (p. 15). The same research also identified a discrepancy between teachers' and students' perceptions of the teacher-student relationship: and the more students perceived the teacher as uncertain, dissatisfied, and admonishing, the greater this mismatch became. Other studies have also shown that if student perceptions of influence and proximity are high, the difference between students' and teachers' perceptions was smaller (p. 19). In short, Wubbels and Brekelmans' research indicates that the QTI may be a useful feedback tool for teachers' self-reflection, enabling them to rethink their classroom positions as perceived by themselves as well as by their students.

3. Purpose of the Study and Research Questions

The purpose of the current study is to investigate the relationships among students' perceptions of instructor-student interactions, students' satisfaction, and students' achievement outcomes. Therefore, two questions guided our study: (a) What is the relationship between teacher-student interaction and students' course satisfaction and engagement? and (b) What is the relationship between teacher-student interaction and students' course achievement?

4. Method

4.1 Participants

The sample for the current study consisted of 104 second-year art and design students from five sections of an Introduction to Animation course in Macau. Among them, 47 were male and 57 were female, with average age of 20.63 years (*SD* = 1.45).

4.2 Measurement

4.2.1 Teacher-student relationships

The current study used the 48-item Australian version of the QTI (Fisher et al., 1995), which is answered using a five-point Likert scale ranging from 1 ="Never" to 5 ="Always." Six items are used for each of the eight scales of teacher behavior. A sample item for *leadership* is, "The teacher explains things clearly," and of *helping/friendly*, "This teacher helps us with our work." An example question for *understanding* is, "This teacher trusts us," and for *student responsibility/freedom* is, "We can decide some things in this teacher's class." For, *uncertain*, an example is, "This teacher seems uncertain"; of *dissatisfied*, "This teacher thinks that we cheat"; of *admonishing*, "This teacher gets angry unexpectedly"; and of *strict*, "This teacher is strict." The total score for a particular scale is the sum of the circled numbers for the six items belonging to that scale. Fisher et al. reported the alpha reliability of the Australian version of the QTI as ranging from .63 to .83. Its validity was discussed in Nugent (2009).

4.2.2 Student experience of the course

The current study used ten items from Tsai and Lin's (2012) study, which includes five items of student engagement and five items of student satisfaction. There are a five-point scale, from 1 "strongly disagree" to 5 "strongly agree." Tsai and Lin reported Cronbach's alpha values of .65 for engagement and .89 for satisfaction. One example item from student-engagement group is, "I like to spend extra time on this course," and one from the student-satisfaction is, "I am willing to take another course taught by this instructor."

4.2.3 Student achievement

To measure achievement, the current study used the participants' final scores in their Introduction of Animation course, which included five assignments — clay animation, text animation, about yourself, campus introduction, and food in Macau — with each assignment accounting for 20% of the total score. In this course, students were mainly asked to shoot short video clips, and edit the resulting video, adding subtitles as well as background music. The latter three assignments were all video-shooting task, and all projects were completed using Adobe Premiere CS6.

4.3 Procedure

The questionnaire took each student about 10 minutes to complete, and was collected online during the final week of the semester. Participants were informed of the purpose of the study and instructed on how to complete the questionnaire, and those who completed it received extra course credit. Measurement of student achievement was facilitated by the instructor, who provided his course's final grading sheet.

5. Results

Means, standard deviation, and zero-order correlation are shown in Table 1 and 2. Among the examined

variables, the means for *leadership*, *helpful/friendly*, *understanding*, *student engagement*, and *student satisfaction* was quite high (>4), suggesting that students were generally satisfied their classes. The relationships among these variables was investigated using Pearson product-moment correlation coefficients. It was found that only two variables were significantly correlated with final score; these were *student responsibility and freedom*, r = -.22 and *strict*, r = -.29. Regarding the correlations between student engagement and other variables, Table 2 shows that almost all such correlations were significantly, with the exceptions of *admonishing and strict*, and among the significant ones, two were negative (*uncertain*, r = -.24 ; *dissatisfied*, r = -.26). The correlation between student satisfaction and other variables exhibited a similar pattern: almost all correlations were significant, excepting *student responsibility and freedom* and *strict*, and among the significant ones, three variables were negative (*uncertain*, r = -.37; *dissatisfied*, r = -.46; and *admonishing*, r = -.20).

To further investigate which variables might be valid predictors of students' final scores, we used stepwise regression to calculate a model in which final score was treated as the dependent variable. SPSS 12 software was allowed to select which variables would be entered and in which order. The results, as shown in Table 3, indicate that *strict* (β = -.29) was the only valid predictor of academic performance, F (1, 102) = 9.32, p = .003, R^2 = .08. This outcome suggests that the less strict the teachers is during class, the higher the academic performance of the students will be. Nevertheless, in this model, *strict* only explained 8% of the observed variance in academic performance.

6. Discussion

The present study found support for associations between specific teacher-student relationships, levels of student satisfaction and engagement, and academic performance. Based on a stepwise regression analysis, however, *strict* was the sole predictor of academic performance (with stricter teacher behavior leading to lower student performance), and only 8% of the variance in academic performance could be explained by our model.

Our first research question concerned the relationship between teacher-student interaction and students' course satisfaction and engagement. Zero-order correlations showed that student engagement, in particular, was positively associated with *leadership*, *helpful/friendly*, *understanding*, and *student responsibility and freedom*. In other words, when teachers exhibited stronger leadership, or were more friendly and understanding toward students, and gave students more responsibility and freedom, students remained more involved in the course. In addition, we found negative correlations between student engagement and the teacher characteristics *uncertain* and *dissatisfied*.

With regard to student satisfaction, zero-order correlations showed that it was positively correlated to *leadership*, *helpful/friendly*, and *understanding*, and negatively correlated to *uncertain*, *dissatisfied*, and *admonishing*. In other words, when teachers showed better leadership, and were more friendly and understanding toward their students, student satisfaction with the course was higher. In addition, if teachers revealed a more uncertain attitude about the course, or dissatisfaction with their students, or admonished them more, students were likely to report lower levels of satisfaction with the course.

Our second research question related to the relationship between teacher-student interaction and students' course achievement. Zero-order correlations showed that only *student responsibility and freedom* was significantly (and negatively) correlated to students' final score. In other words, the more responsibility and freedom students were given, the lower their academic performance would tend to be. This may related to the fact that traditional Confucian culture is inclined toward teacher-centered pedagogy, a top-down approach that gives little freedom to students and is relatively strict about their following teachers' orders (Marginson, 2011). This traditional root in Chinese students' minds may lead them to associate high academic performance with explicit direction from teachers, and conversely, to perform less well when such explicit direction is not provided.

7. Limitations

Our study computed each participant's average score based on five projects as the measure of his/her academic performance. In the art and design field, this evaluation approach is quite normal, in contrast to other fields that are more reliant on traditional examinations; however, this distinctive aspect of the present study may limit the generalizability of its results. Another salient limitation was that our participants represented a homogenous sample, all drawn from one institution and one ethnic group. It is recommended that future studies of this topic recruit more diverse groups of respondents.

8. Conclusion

The results of our study suggest that several teacher-student interaction variables can have positive or negative effects on students' engagement and satisfaction. More importantly, according to our regression model, the interaction variable *strict* was the sole predictor of academic performance. In addition to contributing to the theoretical literature on teacher-student relationship, the present findings have important implications for instructional practices in tertiary-level art and design courses. In order to attain higher levels of student

engagement and course satisfaction, teachers should demonstrate good leadership qualities, be more friendly and helpful to their students, and pay more attention to their students' needs. Our prediction model's failure to identify variables other than *strict* as valid predictors of academic performance was unexpected, more research is needed to confirm and explain this result. Overall, however, the present study provides empirical evidence for the existence of relationships among teacher-student interaction, students' engagement and satisfaction, and academic performance, which in turn provide support for evidence-based instructional practices. In addition, the present study confirms the usefulness of the QTI in art and design contexts, which will be useful to art educators seeking reliable feedback and self-evaluation tools. Therefore, it is suggested that for future researchers, especially for art educators, the use of the QTI in different ethnic groups and different education level (e.g., k12 students) will be beneficent to broadening the understanding of teacher-student interaction in art and design contexts.

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Table 1. Means and standard deviations of 11 variables

Variable	*M*	*SD*
Leadership (LD)	4.08	.76
Helpful/Friendly (HF)	4.00	.69
Understanding (UD)	4.25	.68
Student responsibility and freedom (RF)	3.38	.51
Uncertain (UC)	1.88	.62
Dissatisfied (DS)	2.04	.64
Admonishing (AM)	1.99	.52
Strict (ST)	2.76	.62
Student engagement (SE)	4.25	.77
Student satisfaction (SS)	4.35	.74
Final score (FS)	74.81	9.09

Table 2. Zero-order correlations among 11 variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1.LD	--										
2.HF	.64**	--									
3.UD	.84**	.62**	--								
4.RF	.19	.55**	.23*	--							
5.UC	-.45**	-.40**	-.37**	.00	--						
6.DS	-.50**	-.34**	-.44**	.17	.60**	--					
7.AM	-.25*	-.21*	-.22*	-.03	.71**	.50**	--				
8.ST	.06	.11	-.03	.33**	.09	.41**	.23*	--			
9.SE	.68**	.64**	.68**	.22*	-.24*	-.26**	-.05	.13	--		
10.SS	.78**	.59**	.70**	.10	-.37**	-.46**	-.20*	.05	.80**	--	
11.FS	-.09	-.14	-.10	-.22*	.08	-.08	-.06	-.29**	-.09	-.00	--

* $p < .05$. ** $p < .01$.
Note. LD = Leadership; HF = Helpful/Friendly; UD = Understanding; RF = Student responsibility and freedom; UC = Uncertain; DS = Dissatisfied; AM = Admonishing; ST = Strict; SE = Student engagement; SS = Student satisfaction; FS = Final Score.

Table 3. Stepwise regression analysis summary for variables predicting academic performance

Predictor variable	*B*	*SE B*	β	*t*	*p*
Strict	-4.25	1.39	-.29	-3.05	.003
Excluded variables					
Leadership			-.07	-.77	.445
Helpful/Friendly			-.11	-1.18	.242
Understanding			-.11	-1.18	.243
Student responsibility and freedom			-1.39	-1.39	.168
Uncertain			1.11	1.11	.272
Dissatisfied			.42	.42	.678
Admonishing			.14	.14	.888
Student engagement			-.50	-.50	.619
Student satisfaction			.13	.13	.893