

THE PRINCIPLES OF MARKETING COURSE AND THE EFFECTS OF PART-TIME INSTRUCTION ON FINAL GRADES

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ABSTRACT

This paper studies the effect that part-time instruction has on students' final grades in the principles of marketing course at a comprehensive IIA university. We find part-time instructors assign grades 0.86 points higher than assigned by full-time instructors. using a multiple linear regression, in which the response variable is students' grades, the explanatory variable instructor status--i.e., full-time or part-time--is statistically significant at less than a 0.01 level of confidence (p -value = $3.4E-22$). Additionally, the explanatory variable GPA is also significant at an alpha level less than 0.01 with a p -value of $1.57E-51$. The model yielded an adjusted R^2 value of 0.52, indicating that 52 percent of students' grades are accounted for by the explanatory variables included in the model.

INTRODUCTION

there is an increasing trend towards the use of part-time instructors at community colleges and four-year institutions (Sonner, 2000). Many four-year institutions price discriminate by employing part-time instructors in an effort to contain escalating operating costs. Clery (1998) finds that between 1976 and 1995, the number of part-time instructors increased by 91 percent compared with an increase of only 27 percent in the number of full-time instructors. According to *The New Professoriate*, a report released in October 2002 by the American Council on Education (ACE), non-traditional faculty "now make up the majority in academe" (Marklein, 2002). Debarros (2003) states several reasons for the increasing utilization of part-time instructors, including the following: 1) the budgetary constraints facing numerous educational institutions, 2) the increasing number of academic program offerings, 3) the shortage of qualified full-time instructors, and 4) the manpower flexibility associated with the use of part-time instructors.

There are also drawbacks to the use of part-time instructors. Many, if not most, educational institutions have embarked on formal programs of self-study and continuous improvement. One of the requirements for continuous improvement is that the university strive for consistency in multi-section course content. However, measuring the quality of instruction is a difficult undertaking.

LITERATURE REVIEW

Research in marketing education is highly varied. Researchers have analyzed student achievement and learning (Mellon, 2003). Other researchers have examined the importance of particular influences as they relate to student performance (McCorkle, Alexander & Schaefer, 2003; Williams, Kugele & Kamery, 2003), faculty staffing (Ramsett, Johnson & Adams, 1973), course sequencing (fazel & Johnson, 1986), and student withdrawal (Escoe, Julian & Way, 1997; Melnikova, Williams, Pitts & Kamery, 2003).

The purpose of the current study is to analyze the effect of instructor rank--as it pertains to full-time or part-time employment status--on student grades in the principles of marketing course. Can a student taking a principles of marketing course improve his or her grade by enrolling in a course taught by a part-time instructor?

METHODOLOGY AND RESULTS

Data were collected from all sections of the principles of marketing course taught at a private comprehensive IIA university. Three full-time and three part-time instructors were employed to teach the course. For the sample of 370 students, the following data, which we believe to include explanatory factors for student grades, were obtained:

- 1) The dependent variable, *grade* in the principles of marketing course (*A, B, C, D, F*)
- 2) The independent variable, *status of the instructor* (full-time or part-time)
- 3) The independent variable, *status of the student* (day or evening student)
- 4) The independent variable, students' *major*
- 5) The independent variable, students' *gender*
- 6) The independent variable, students' *age*
- 7) The students' class standing (freshman, sophomore, junior, senior)
- 8) The independent variable, students' *GPA*

The dependent variable, *grade*, which is recorded on the students' record as an alpha character, was numerically represented in the model as: $A = 4.0$, $B = 3.0$, $C = 2.0$, $D = 1.0$, and $F = 0.0$. Although the dependent variable, *grade*, is ordinal data, since the interval between the grades can be estimated as being ten point intervals (except for the *F* category), the data is considered to closely approximate interval level data. The use of the values 4, 3, 2, 1, and 0 for the letter grades of *A, B, C, D*, and *F* is similar to using the midpoint of a class to estimate descriptive statistics for a frequency distribution.

Table 1 examines and compares the sample variances of the grades given by part-time and full-time instructors. Since the F-test value of 1.75 is greater than the F-critical value of 1.28, it cannot be assumed that the population variances are equal. thus a two-sample hypothesis test for the equality of population means would employ the t-test, assuming unequal population variances (see Table 2).

	Full-time	Part-time
Mean	2.71	3.57
Variance	0.95	0.54
Observations	187	183
df	186	182
F	1.75	
P(F <= f) one-tail	8.19E-05	
F-Critical one-tail	1.28	

Table 2 analyzes the relationship between the status of the instructor, i.e., part-time or full-time, and the grade received in the principles of marketing course. The hypothesis tested was one of no difference in the average grades awarded by part-time vs. full-time instructors (in the population). The p-value of 9.50E-20 represents the probability that both populations, i.e., part-time instructors, and full-time instructors, award grades equally. This contention is rejected at any reasonable level of alpha.

	Part-time	Full-time
Mean	3.57	2.71
Variance	0.54	0.95
Observations	183	187
Hypothesized Mean Difference	0	
df	346	
t-Stat	9.67	
P(T <= t) one-tail	4.75E-20	
t-Critical one-tail	1.65	
P(T <= t) two-tail	9.50E-20	
t-Critical two-tail	1.97	

Several studies have analyzed relationships between student grades and various student characteristics such as age, gender, class standing, attendance on a full-time or part-time basis, and academic major (Chan, Shum & Wright, 1997). We decided to include these variables, along with our variable of main concern, i.e., whether the course was taught by a part-time or full-time instructor, and measure their relationships with a multiple linear regression model. In this way, we can analyze the relationship between student grades and the employment status of the instructor (part-time or full-time) while controlling for the various student demographic characteristics mentioned above.

Although an ordered probit analysis (Van Ness, Van Ness & Kamery, 1999) or a multinomial logit model (Glasure, 2002) may be more appropriate for analyzing the dependent variable, coded

grades, and their relationship with the various student characteristics, only the multiple regression approach will be utilized here. Using the coding method of A = 4 (or 95), B = 3 (or 85), etc., is similar to estimating the mean or standard deviation of data that has been summarized into a frequency distribution. Table 3 presents the results of a multiple regression analysis.

Multiple R	0.73							
R ²	0.53							
Adjusted R ²	0.52							
Standard Error	0.67							
Observations	370							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	12	184.50	15.38	34.15	4.01E-52			
Residual	357	160.74	0.45					
Total	369	345.24						
	Coef	Std Error	t-Stat	P-value	Lower 95%	Upper 95%	Lower 95%	Upper 95%
Intercept	1.15	0.33	3.54	0.00	0.51	1.79	0.51	1.79
TEACHER	-0.75	0.07	-10.29	6.3E-22	-0.90	-0.61	-0.90	-0.61
DAY/EVE STU	0.01	0.11	0.08	0.93	-0.21	0.23	-0.21	0.23
MAJ1	-0.13	0.11	-1.18	0.24	-0.35	0.09	-0.35	0.09
MAJ2	-0.04	0.11	-0.33	0.74	-0.26	0.19	-0.26	0.19
MAJ3	-0.16	0.20	-0.82	0.41	-0.56	0.23	-0.56	0.23
MAJ4	0.01	0.13	0.05	0.96	-0.25	0.26	-0.25	0.26
GENDER	-0.07	0.07	-0.99	0.32	-0.22	0.07	-0.22	0.07
AGE	-0.01	0.01	-0.88	0.38	-0.02	0.01	-0.02	0.01
CLASS1	-0.03	0.08	-0.45	0.65	-0.19	0.12	-0.19	0.12
CLASS2	-0.24	0.19	-1.25	0.21	-0.61	0.14	-0.61	0.14
CLASS3	0.07	0.24	0.30	0.77	-0.40	0.54	-0.40	0.54
CUM GPA	0.91	0.06	15.43	1.6E-41	0.79	1.02	0.79	1.02

Student major, class standing, whether day or evening student, and student gender were included as indicator variables. None of these indicator variables were significantly related to the grade received. A graphical analysis of the residuals did not indicate serious violations of the model's assumptions. There are no extreme points (outliers); at each grade level, residual variance does not indicate the presence of homoscedasticity; the residuals approximate a normal distribution. The adjusted coefficient of multiple determination shown in Table 3 is equal to 0.52, indicating that 52 percent of the change in the dependent variable, *grade*, is explained by the set of independent variables (which are student characteristics, except for the instructor status variable). The F-

statistic's high value of 34.15 corroborates the existence of a significant relationship between student grades and the set of independent variables.

Independent variables that would be significant at a 0.01 level of confidence include the following:

- 1) Instructor status (full- or part-time) t-stat value = -10.29
- 2) Grade point average (GPA) t-stat value = 15.43

None of the other independent variables showed a significant relationship to the course grade.

CONCLUSION

The primary objective of this paper was to examine the relationship between student grades in the principles of marketing course and the employment status of the instructor, i.e., whether part-time or full-time. A multiple regression model, which allowed for the inclusion of many student characteristics, did report a significant relationship between the two factors. We find that a student's cumulative GPA was the strongest predictor of success in the principles of marketing course. Next in importance was the employment status of the instructor, part-time or full-time. It is recognized that our sample may include selection bias since part-time instructors may teach predominantly at times and places where non-traditional students are enrolled. Our data was collected at a single university; thus, our results may lack universal application.

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