

STUDENTS' EVALUATION OF TEACHING: AN EMPIRICAL STUDY

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Abstract

The purpose of this study is to examine students' evaluation of teaching. To date not many studies are carried out to identify students evaluation and establish the overall quality of lectures and teaching skills of the instructor, the quality of the examinations and lecturer's perceived knowledge of the subject, the student's expected grade and the enrolment on the course. Linking research with teaching and student evaluation is attracting significant attention both to policy makers and academics. This study was used as a survey questionnaire and random sampling method to collect responses. Collected data were analysed by using descriptive statistics, correlation analysis to determine the relationship between variables through stepwise multiple regression analysis used to test the hypothesis. The study has revealed that student evaluations of teaching in higher education need to be treated with extreme caution.

Keywords: Teaching, Research, Design & Evaluation

1. INTRODUCTION

Educational institutions pay increasing attention on effective teaching learning (Biggs, 2003; Carnell, 2007; Aquario, 2009). Linking research with Teaching and student evaluation is attracting significant attention to both policy makers and academics. There is a growing body of research on the topic (Barnett, 2005; Brew, 2001, 2006; Healey & Jenkins, 2000; Jenkins *et al.*, 2003, 2009; Kreber, 2006).

This study strives to make both a theoretical and practical contribution regarding students' perception of teaching and its outcomes. Research efforts addressing the impact of students' perceptions can be readily framed within Biggs's (1989) 3P model, which conceptualises the learning process as an interacting system of three sets of variables: the learning environment and student characteristics (presage), students' approach to learning (process) and learning outcomes (product).

Ramsden&Entwistle (1981) were the first to empirically establish a relationship between approaches to learning and perceived characteristics of the academic environment. This association was explored through a concurrent factor analysis of the scales of the Approaches to Studying Inventory (Entwistle *et al.*, 1979) and the Course Perceptions Questionnaire (CPQ; Entwistle&Ramsden, 1983), based on the responses of a large, cross-disciplinary sample of English higher education students. The resultant combined factor structure evidenced a strong association between students' perceptions of a heavy academic workload and their adoption of a reproducing or surface approach to study.

To date not many studies carried out to identify student's evaluation. That's why the aim of this study is to determine the overall quality of lectures, teaching skills of the instructor,

quality of the examinations, lecturer's perceived knowledge of the subject, student's expected grade and the reasons of enrolment on the course.

2. METHOD

This research study measures the relationship between independent and dependent variables. Initially, the research started from the review of large amount of literature for the empirical examination. This research has developed hypotheses to examine the relations between independent and dependent variables. The procedure adopted for this research follows a quantitative approach for data collection and analysis. According to Gilbert (2001), the positivism paradigm uses deduction, beginning with hypotheses. Hussey and Hussey (1997) defined that the normal process under a positivistic paradigm is to study the literature to establish an appropriate theory and construct hypotheses. There are certain reasons to adopt a quantitative approach for data collection from the workplace. First, this study is going to measure the relationships between the variables. Second, the ontological position suggests the realist position that requires social facts. Third, the epistemological position studies independent observable facts in society.

This research consists of an empirical study in which a survey questionnaire has been applied for data collection.

2.1 Research Design

For this research, a research design has been developed to focus the research step by step. In fact, the research design is based on a research model that is rooted in the assumption that research is perceived as a sequence of steps closely interrelated, and the success of one step is dependent on completion of the preceding step (Sarantakos, 1993).

2.2 Data Analysis:

2.2.1 Multiple Regression Analysis

Multiple regression analysis is used to predict a dependent or criterion variable from two or more independent or predictor variables. Consider the sample regression model for n observations with p independent variables:

$$\mathbf{Y} = \mathbf{XB} + \mathbf{e},$$

where \mathbf{Y} is an $n \times 1$ column vector containing data on the dependent variable (criterion);

\mathbf{X} is an $n \times (p + 1)$ matrix containing data on the predictor (independent) variables;

\mathbf{B} is a $(p + 1) \times 1$ column vector containing estimated regression coefficients;

and \mathbf{e} is an $n \times 1$ column vector containing error terms (residuals).

One of the main purposes of multiple regression analysis is to establish a regression equation that can be applied in other samples to predict an unknown criterion variable with known data on the predictor variables. When conducting multiple regression analysis, regression coefficients (\mathbf{B}) are typically estimated using the Ordinary Least Squares (OLS) method, which finds values of the regression coefficients that provide the most accurate fit of the data to the model by minimizing prediction error (residuals),

$$\mathbf{e} = \mathbf{Y} - \mathbf{XB} = \mathbf{Y} - \hat{\mathbf{Y}},$$

where $\hat{\mathbf{Y}}$ is an $n \times 1$ column vector containing predicted Y values for the sample. OLS provides optimal, unbiased regression coefficients when the following assumptions are met: (1) lack of measurement error; (2) the residuals have a mean of zero; (3) the residuals have constant variance; (4) the residuals are not inter correlated; and (5) the residuals are normally distributed (Hamilton, 1992).

3. FINDINGS AND DISCUSSION

The mean scores were evaluated for a sample of 10 courses on six variables: overall quality of lectures, teaching skills of the instructor, quality of the examinations, lecturer’s perceived knowledge of the subject, student’s expected grade and the enrolment on the course.

Standard regression and Step-wise regression was performed on the variables and the SPSS printouts of both analyses are shown below.

Standard Multiple Regression

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Enrolment on the course, Lecturers perceived knowledge of the subject, Student's expected grade, Teaching skills of the instructor, Quality of the examinations	.	Enter

- a. All requested variables entered.
- b. Dependent Variable: Overall quality of lectures

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.972 ^a	.944	.875	.2118

- a. Predictors: (Constant), Enrolment on the course, Lecturers perceived knowledge of the subject, Student's expected grade, Teaching skills of the instructor, Quality of the examinations

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.045	5	.609	13.569	.013 ^a
	Residual	.179	4	.045		
	Total	3.224	9			

- a. Predictors: (Constant), Enrolment on the course, Lecturers perceived knowledge of the subject, Student's expected grade, Teaching skills of the instructor, Quality of the examinations
- b. Dependent Variable: Overall quality of lectures

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.553	.958		.577	.595	-2.107	3.213		
	Teaching skills of the instructor	1.182	.212	1.285	5.566	.005	.592	1.772	.261	3.828
	Quality of the examinations	.726	.448	.778	1.619	.181	-.519	1.971	.060	16.620
	Lecturers perceived knowledge of the subject	-1.257	.679	-.755	-1.850	.138	-3.144	.630	.083	11.976
	Student's expected grade	.355	.373	.201	.952	.395	-.681	1.391	.313	3.192
	Enrolment on the course	.002	.001	.983	2.463	.069	.000	.005	.087	11.436

- a. Dependent Variable: Overall quality of lectures

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	Teaching skills of the instructor	Quality of the examinations	Lecturers perceived knowledge of the subject	Student's expected grade	Enrolment on the course
1	1	5.246	1.000	.00	.00	.00	.00	.00	.00
	2	.735	2.671	.00	.00	.00	.00	.00	.08
	3	.009	23.629	.16	.59	.00	.00	.00	.05
	4	.006	29.760	.23	.11	.17	.00	.02	.06
	5	.003	43.984	.37	.14	.02	.00	.79	.00
	6	.000	110.955	.24	.17	.81	1.00	.19	.81

- a. Dependent Variable: Overall quality of lectures

There is a high level of correlation with $R = 0.972$ and the ANOVA indicates that this correlation is significant.

$R^2 = 0.944$ which indicates that 94.4% of the variation in the overall quality of the lectures can be accounted for by the variables teaching skills of the instructor, quality of the examinations, lecturer's perceived knowledge of the subject, student's expected grade and the enrolment on the course.

The tolerance values are very low and this indicates multicollinearity.

Instead of forcing all the variables into the analysis, the step-wise regression allows SPSS to decide on the variables to be entered, dependent on their contribution to the variance and the predictive model. This aids the researcher to find the best predictive model with the fewest variables which make the greatest contribution to the variance.

Step-wise Regression:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.912 ^a	.832	.811	.2604

a. Predictors: (Constant), Teaching skills of the instructor

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.682	1	2.682	39.556	.000 ^a
	Residual	.542	8	.068		
	Total	3.224	9			

a. Predictors: (Constant), Teaching skills of the instructor

b. Dependent Variable: Overall quality of lectures

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.516	.460		1.122	.295	-.544	1.576	1.000	1.000
	Teaching skills of the instructor	.839	.133	.912	6.289	.000	.531	1.147	1.000	1.000

a. Dependent Variable: Overall quality of lectures

Excluded Variables^b

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Quality of the examinations	-.207 ^a	-8.99	.398	-.322	.408	2.449	.408
	Lecturers perceived knowledge of the subject	.043 ^a	.207	.842	.078	.562	1.780	.562
	Student's expected grade	.024 ^a	.105	.919	.040	.464	2.154	.464
	Enrolment on the course	.327 ^a	2.088	.075	.619	.604	1.655	.604

a. Predictors in the Model: (Constant), Teaching skills of the instructor

b. Dependent Variable: Overall quality of lectures

Collinearity Diagnostics^c

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	Teaching skills of the instructor
1	1	1.984	1.000	.01	.01
	2	.016	11.076	.99	.99

a. Dependent Variable: Overall quality of lectures

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Teaching skills of the instructor	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: Overall quality of lectures

The step-wise regression only includes the quality of teaching as an independent variable in the analysis. The other four factors are excluded because they do not meet the required criteria for inclusion. The correlation coefficient, $R = 0.912$, with significant correlation, $\text{Sig.} = 0.0001 < 0.05$. $R^2 = 0.832$ indicating that 83.2% of the variance in the overall quality of the lectures can be accounted for by the teaching skills of the instructor.

4. CONCLUSION:

Findings of this study may be useful to researchers investigating the gap in existing literature. This research has shown that while the issue of student evaluations of teaching has become an internationally acclaimed practice, which is consistent with best practices, the system is nevertheless fraught with numerous challenges which cannot be glossed over.

The study has revealed that from the lecturer’s perspective, the evaluation of teaching by students tends to have more demerits than merits. Consequently, results from student evaluations of teaching in higher education need to be treated with extreme caution.

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