The Influence of Achievement Goal Orientation and Self-Efficacy on Student Performance in an Introductory Economics Course

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Abstract

Research on achievement goal orientation and self-efficacy and their effect on student motivation and achievement has been largely absent in economic education literature. The purpose of this paper is to bridge this gap by incorporating these two psychological constructs as determinants of student grades in an economics course. The sample is drawn from two classes taught in Global Economics, which is an introductory economics course taught during the Spring Semester of 2017 and designed for non-business majors with a global orientation. Of the students enrolled in both classes, 187 out of 210 participated in a survey at the end of the semester describing their demographic and academic profile, which includes GPA, gender, age, course level, race, student classification, and employment. Student attendance was taken six times during the semester and was incorporated as one of the student characteristics. Students also were asked to fill out two questionnaires, which included a 12-item questionnaire with 3 each describing mastery approach, mastery avoidance, performance approach, and performance avoidance (Elliot and Murayama, 2008) and a Self-Efficacy questionnaire consisting of eight items (Nietfeld et al., 2006). Regression results show that of the student characteristics equation, the GPA, age, and attendance are the only significant variables in their influence on students' grades. Of the educational psychology variables, mastery orientation and self-efficacy are shown to be significant and have a positive effect on student performance. Also, the inclusion of the educational psychology variables to the student characteristics equation added significantly and positively to the regression results by increasing the adjusted R square value. The t test also shows that students who are high on both mastery approach and self-efficacy scales significantly outperform students who are low on both mastery approach and self-efficacy scales. The implication of these results for educators is discussed in the paper.

Keywords: economic education, goal orientation and self-efficacy variables and student grades

1. Introduction

Researchers in economic education have long been interested in the association between student performance and student demographic and academic characteristics such GPA, age, gender, and attendance, to name a few. Evidence shows that these variables have a strong influence on student achievement, as reflected by their grades (see, for example, Anderson et al., 1994). To be sure, other determinants have been incorporated in the economic education literature to examine their influence on student grades, such as attendance, race, student standing, study time, class size, as well as the role of information technology (see Anderson et al., 1994, Agarwal and Day, 1998, and Savage, 2009).

Economic education researchers also started to develop an interest in the role of educational psychology variables on student performance such as metacognitive skills, locus of control, achievement goal orientation, test anxiety, and self-efficacy (see Kader, 2022). This paper adds to the existing literature by providing an empirical examination of the impact of both achievement goal orientation and self-efficacy on academic performance, as reflected by student grades in an introductory global economics course.

2. Review of the Literature

Achievement goal orientation has been tested widely in educational psychology and is considered to be the most prominent motivational theory of learning (Anderman and Wolters, 2006). According to this theory, students engage in a given task for different purposes, either to learn or to perform (Elliot and Dweck, 2007). There are four components to the theory: mastery, mastery avoidance, performance, and performance avoidance. The mastery approach goal applies to students who focus on learning and understanding the new information by applying deep learning strategies to learn as much as possible, while the mastery avoidance goal applies to students who strive to avoid misunderstanding the course material (Elliot and Harackiewicz, 1996, Elliot and McGregor, 2001).

Students with a performance goal focus on demonstrating their abilities relative to others by creating an aura of competence and doing better than their peers follow a shallow learning approach (Moller and Elliot, 2006; Kaplan and Maehr, 2007). Students with a performance avoiding goal focus on avoiding demonstrating a lack of competence in the new course material (Moller and Elliot, 2006). Most of the studies found a positive effect on the mastery approach goal and mixed results with the performance approach goal effect. However, both approaches have been shown to have positive effects on learning outcomes if students pursue multiple tasks (Harackiewicz et al., 2002). Several studies showed a negative learning outcome with both the performance avoidance approach and mastery avoidance approach (Eliot and Church, 1997). In the field of economic education, only performance avoidance was shown to have a positive and significant effect on student performance in an introductory economics course (Hadsell, 2010)

The other subject investigated in this paper is self-efficacy. The term self-efficacy was originally developed by Albert Bandura in 1977, and it refers to an individual's confidence in their ability to complete a given task or to achieve a goal. The relationship between self-efficacy and academic performance has been the subject of many studies, and most show that self-efficacy has a positive influence on academic performance (Anderson et al., 2005; Loo et al., 2013). In the field of economic education, correlation analysis indicates that problem-solving and academic self-efficacy correlate with student motivation and are predictors of test performance (Salazar et al., 2018). Also, a recent study shows that self-efficacy has a positive and significant effect on student performance in an introductory economics course (Kader, 2022).

3. Data and Methods

During Spring Semester 2017, this author taught two classes of Global Economics, which is an introductory economics course combining micro and macroeconomics with a global orientation. Of the students enrolled in both classes, 187 out of 210 students participated in a survey at the end of the semester describing their demographic and academic profile. The survey included GPA, gender, ethnicity, age, study time, class standing, employment, and whether the course was required. Attendance was taken six times by the instructor during the semester and was included in this study. Students were asked to fill out two questionnaires, one for achievement goal orientation and one for self-efficacy. The two questionnaires have a 5-point Likert scale for each item. Achievement goal orientation is described by 12 items (Elliot and Murayama, 2008), with 3 each describing mastery approach, mastery avoidance, performance approach, and performance avoidance. The following item describes the mastery approach, "It is important for me to understand the content of this course as thoroughly as possible," while the following item describes mastery avoidance "I worry that I may not learn all that I possibly could in this class." The following item deals with the performance approach "My goal in this class is to get a better grade than most of the other students," while the following item shows performance avoidance, "My goal in this class is to avoid performing poorly." The self-efficacy questionnaire consists of eight items (Nietfeld et al, 2006). An example of one of the items included is "I think I have good skills and strategies to learn global economics."

As shown in Table 1, the profile of the students participating in the survey shows that their average score for the semester is 77.6 and is based on four exams given during the semester, and their self-reported GPA is 3.06. The participating students have an average age of 22.8 years, 62 percent are males, 42 percent are whites, and the rest are of Hispanic, Asian, and Black ethnicity. Slightly more than half of the students are freshmen and sophomores, and students participating in the survey work an average of 14.7 hours a week in the hospitality industry. Only 25 percent of the students are taking the course as a requirement, and they spend two hours a week studying. The average attendance taken by the instructor in class is 4.5 out of a maximum of 6.

4. Empirical Model and Estimated Results

1. The first objective of this paper is to estimate the influence of student characteristic determinants, as well the influence of self-efficacy and achievement goal orientation on student performance, as reflected by average student score, using OLS multiple regressions, as shown in Table 2. For the regression analysis, the average score is treated as the dependent variable, while all other variables are treated as the independent variables.
2. The second objective of this paper is to estimate the influence of self-efficacy and achievement goal orientation on average score based on an unequal variance t test. The t test is also used to examine the combined influence of the two educational psychology variables on average student score, as shown in Table 3.

Table 2 shows the regression results. Column 2 of the table shows the regression results of the economic education variables with GPA, age, and attendance as the only significant variables. Of the educational psychology variables, mastery approach and self-efficacy are the only significant ones.
Adding the economic education variables with education psychology variables in Column 4 shows that GPA, age, attendance, mastery approach, and self-efficacy are all significant. Notice that mastery approach and self-efficacy have

a positive influence on student performance, which is consistent with the findings in other studies. Notice also that that the inclusion of the educational psychology variables improves the regression results by increasing the adjusted r value from 0.13 to 0.16.

The degree of association between mastery approach and self-efficacy is highly significant at 0.01 level of significance and positive with r of 0.193***. This indicates that students who pursue the mastery approach also have a higher self-efficacy scale. This is supported by the results in Table 3, which show the influence of self-efficacy and mastery approach on student performance. Splitting the sample by a median self-efficacy score of 3.38 shows that the average score of high self-efficacy students is significantly higher than the average score of low self-efficacy students (79.601 vs 75.452). Also, splitting the sample by a mastery approach score of 3.67 shows that the average score of high mastery approach students is significantly higher than the average score of low mastery approach students (80.653 vs 74.899). The t test results also show that students with both high self-efficacy and high mastery approach (n=53) significantly outperform students with both low self-efficacy and low mastery approach (n=61), with an average score of 80.298. vs 72.297. This supports the notion that both the self-efficacy and mastery approach reinforce each other in their influence on student performance.

5. Conclusion

Previous research on achievement goal orientation and self-efficacy showing that they are closely related to student performance can be of help to students in improving their academic success. However, these variables were often examined separately to predict academic performance in courses taught at the university level. This paper attempts to integrate the two educational psychology variables along with economic education determinants into one framework to provide a better understanding of their influence on student grades. The evidence provided in this paper shows that the mastery component of the achievement goal orientation interacts significantly with self-efficacy and that both variables reinforce each other in their positive influence on student performance.

Table 1 Global Economics Student Profile-The Whole Sample					
Variable	Mean	SD	Variable	Mean	SD
Average Score	77.640	13.898	Study Time	1.957	1.041
GPA	3.060	0.510	Attendance	4.481	0.771
Age	22.765	4.844	Mastery Approach	3.440	1.470
Gender	0.620	0.487	Mastery Avoidance	3.470	1.010
Race/Ethnicity	0.417	0.494	Performance Approach	3.850	0.860
Class Standing	0.519	0.369	Performance Avoidance	4.070	0.920
Employment	14.705	13.168	Self-Efficacy	3.390	0.660
Required Course	0.251	0.435	XXX	XXX	XXX

Description of the variables in Table 1.
 Average Score of the Four Exams during the Semester
   GPA Self-Reported by Each Student
   Age (the age of the student at the time of the survey)
   Gender (0 = female, 1= male)

Race/Ethnicity (0 = nonwhite, 1= white)
Class Standing (1= Freshman and Sophomore, 0= Junior, Senior, and other)
Employment Per Week (hours from zero to maximum)
Require Course (1=yes, 0=no)
Study Time Per Week (0= 4 hours and less, 1= more than 4 hours)
Attendance (actual attendance taken from 0 to 6)
Mastery Approach (1 low scale, 5 high scale)
Mastery Avoidance (1 low scale, 5 high scale)
Performance Approach (1 low scale, 5 high scale)
Performance Avoidance (1 low scale, 5 high scale)
Self-Efficacy (1 low scale, 5 high scale)

Table 2
Regression Results Predicting Average Score of the Global Economics Class

Variables	Regression Results of Economic Education Variables	Regression Results of Educational Psychology Variables	Regression Results of the Complete Model
Constant	33.11***	64.959***	32.298***
	(3.947)	(7.756)	(3.080)
GPA	7.516***		6.936***
	(3.810)		(3.550)
Gender	0.093		-1.062
	(0.046)		(-0.512)
Age	0.390*		0.368*
	(1.733)		(1.646)
Race/Ethnicity	1.349		1.015
	(0.672)		(0.511)
Class Standing	0.156		-0.211
	(0.151)		(-0.204)
Employment	0.510		0.619
	(0.985)		(1.214)
Required Course	2.910		3.251
	(1.300)		(1.453)
Study Time	-1.065		-1.035
	(-1.093)		(-1.052)
Attendance	2.652**		2.774**
	(2.062)		(2.162)
Mastery Approach		2.046**	1.532*
		(2.199)	(1.725)
Mastery Avoidance		-1.400	-1.114
		(-1.246)	(-1.037)
Performance Approach		0.344	-0.552
		(0.271)	(-0.423)
Performance Avoidance		-0.483	-1.213
		(-0.432)	(-1.111)
Self-Efficacy		3.283*	2.837*
		(1.965)	(1.704)
N	187	187	187
Adjusted R Square	0.119	0.056	0.157
Standard Error	13.046	13.500	12.761
F	3.788***	3.227***	3.474***

NOTE: The upper numbers are estimated regression coefficients and the lower numbers in the parentheses are t statistics *Significant at 0.10, **Significant at 0.05, ***Significant at 0.01

Table 3: Global Economics Unequal Variance t Test		
Variable	Mean	SD
Average Score High Self-Efficacy (n=93) Low Self-Efficacy (n=94) t statistics ρ (T<=t) one- tail	79.601 75.452 2.062** 0.020	13.297 13.783
Average Score High Mastery Approach (n=94) Low Mastery Approach (n=93) t statistics ρ (T<=t) one- tail	80.653 74.899 2.884*** 0.002	12.009 15.082
Average Score High Self-Efficacy and High Mastery Approach (n=53) Low Self-Efficacy and Low Mastery Approach (n=61) t statistics ρ (T<=t) one- tail	80.298 72.297 3.385*** 0.0005	11.631 13.660

t statistics **Significant at 0.05, ***Significant at 0.01

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