THE INFLUENCE OF PREREQUISITE GRADES ON STUDENTS' PERFORMANCE – FURTHER EVIDENCE FROM KUWAIT

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ABSTRACT

The objective of this study was to perform an empirical investigation of the influence of prerequisite grades on the academic performance of students studying Principles of Financial Accounting (II). This study attempts to provide comparative evidence for the harmonization of international accounting education. A multi-regression model using a sample of 147 students who were enrolled in four sections of a Principles of Financial Accounting (II) course at the College of Business Studies in Kuwait during the 2012/2013 academic year was used to test the study's hypotheses. The results indicate that there was a statistically significant positive relationship between prerequisite grades and students' performance which explained the influence of prerequisite grades on students' performance. The study concludes by considering the implications of these findings on the administration of the College of Business Studies and similar institutions, as well as for instructors, and suggests avenues for future research.

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INTRODUCTION:

Predicting the academic performance of students studying principles of financial accounting has garnered considerable attention from accounting education scholars in recent years. Given that, learning the principles of financial accounting is a cornerstone upon which to build academic and professional success later in life (AECC, 1992). Moreover, learning the principles of financial accounting is viewed as a gateway to the professional world of accountancy. Furthermore, studying Principles of Financial Accounting plays an important role in attracting or expelling talent from the profession; subsequently, the wrong choice in a student's major may affect the value-added of the profession and its future (Hill, 1998; Mladenovic, 2000; Jones and Fields, 2001). In addition, Principles of Financial Accounting has been identified as a critical course for both accounting majors and other business majors (AECC, 1992).

Due to the crucial role that learning the principles of financial accounting plays in accounting education, many accounting educational institutions around the globe devote two separate courses for learning this subject over two semesters. The College of Business Studies (the College hereafter – one of the five colleges of the Public Authority for Applied Education and Training in Kuwait), teaches the principals of financial accounting in two separate parts over two semesters. The two courses are titled Principles of Financial Accounting (I) and Principles of Financial Accounting (II). Studying the two parts of principles of financial accounting is compulsory for all business majors in the College. Passing the first part is a prerequisite to enroll in the second part which is a prerequisite to enroll in more advanced accounting subjects.

The purpose of this study was to perform an empirical investigation of the influence of students' grades in Principles of Financial Accounting (I) on the academic performance of students studying Principles of Financial Accounting (II) at the College.

The study tracked 147 students who were enrolled in four sections of Principles of Financial Accounting (II) at the College during the 2012/2013 academic year. The dependent variable in this study was students' performance, which was measured in terms of each student's overall score. The independent variable in this study was students' prerequisite grades, in addition to some selected controlling attributes; sex, age, and major. A multi-regression model was employed to examine the influence of the independent variable on the dependent variable, and to test the study's hypotheses in order to either accept or reject the hypotheses.

Earlier research into predictions of academic success in accounting has been conducted primarily in the developed countries, and has produced inconclusive results (Al-Twaijry, 2010; Alanzi, 2012). Therefore, our study addressed some of the shortfalls in the existing local and regional accounting education literature resulting from the scarcity of prior studies; we attempted to provide comparative evidence for the harmonization of international accounting education. Furthermore, we focused on academic performance of students learning the principles of financial accounting that has been garnered considerable attention from both educational and professional bodies for a long time (AECC, 1992). Moreover, our study sought to improve the level of output of the College – one of the tributaries of accounting education in Kuwait – by considering the implications of this
study's findings, which will be reflected in the Kuwaiti accounting profession. We strongly believe that this study contributes remarkably to the existing literature of accounting education, especially in developing countries such as Kuwait.

The remainder of this paper is divided into four sections. The Literature Review and Hypotheses Development section covers earlier studies that have been conducted, and which are relevant to the present study. The Research Methodology section describes the data collection and data processing procedures adopted in this investigation. The Results and Analysis section discusses and analyzes the findings of the research. Finally, the Summary and Conclusions section summarizes the study, considers the implications of the study, as well as notes the study's limitations and provides guidelines for future studies.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The aim of this section is to provide the needed background to develop the research hypotheses. Specifically we will examine existing body of research that is relevant to the present study.

Several studies have attempted to identify factors that influence students' performance when learning the principles of financial accounting. Accounting education scholars have recognized the decisive role that learning the principles of financial accounting plays in accounting education and have examined several factors thought to influence student performance when learning the principles of financial accounting such as gender, age, race, major, nationality, marital status, personality type, grade history, college GPA and college experience, high school GPA and high school experience, students' level of motivation and their expectations, study approaches, lecture attendance (absenteeism), time-lag (the time elapsed between studying the two parts of Principles of Financial Accounting), lecture environment, and residential status (Eskew and Faley, 1988; Doran et al., 1991; Gul and Fong, 1993; Tho, 1994; Wooten, 1998; Hill, 1998; Al-Rashed, 2001; Paisey and Paisey, 2004; Elias, 2005; Nelson et al., 2008; Bealing et al., 2009; Mohrweis, 2010; Alanzi, 2012, 2013). However, the outcomes of these studies have not provided strong and consistent evidence regarding students' performance, which has encouraged further research in this area.

Yunker and Yunker (2003) examined the relationship between students' performance in Intermediate Accounting (I) and students' evaluation of instructor in Introductory Accounting (II) along with students' grades in Introductory Accounting (II), GPA, and ACT score as controlling variables. The study showed that there is a significant positive relationship between students' grades in Introductory Accounting (II) and students' performance in Intermediate Accounting (I).

Al-Twajiry (2010) examined the relationship between certain factors and students' performance in three sequential management accounting courses. The study found that students' performance in the Financial Accounting course significantly correlated with their performance in the subsequent Managerial Accounting and Advanced Managerial Accounting courses.

Christensen et al. (2012) examined the relationship between students' performance in terms of final MBA GPA and the completion of accounting among eight undergraduate business courses as prerequisite courses. The study found that students who did not complete those undergraduate courses performed at the same level or slightly higher in MBA programs than those who did.

Alanzi (2012) investigated the influence of prerequisite grades among other factors on students' academic performance when studying Principles of Financial Accounting (II). The study found that students' grades in Principles of Financial Accounting (I) (prerequisite grades) had the most significant influence on students' performance.

Alanzi (2014) also investigated the influence of prerequisite grades among other factors on students' academic performance when studying Cost Accounting. The study found that students' grades in Principles of Financial Accounting (I) (prerequisite grades) had no significant influence on students' performance.

It is obvious from the studies described above that the findings are quite variable as these studies were conducted in different environments, which has encouraged further research in this area. In light of the foregoing literature review and given the data available for this study, the following testable hypotheses will be developed in the next part of this section.

The present study hypothesized that students' grades in Principles of Financial Accounting (I) and students' performance in Principles of Financial Accounting (II) are significantly correlated. For the purpose of this study, student performance was measured by the student's overall score. Examining the impact of a student's grade history (which was represented as prerequisite subject grade) on students' performance has attracted the attention of many accounting education scholars (Eskew and Faley, 1988; Doran et al., 1991; Wooten, 1998; Al-Rashed, 2001; Al-Twajiry, 2010; Alanzi, 2012, 2014). Consequently, we believe that examining the relationship between students' performance in the two parts of Principles of Financial Accounting is fundamental to the present study; accordingly, the first null hypothesis was developed:


H1τ: There is no statistically significant correlation between students' grades in Principles of Financial Accounting (I) and students' performance in learning Principles of Financial Accounting (II).

In order to boost the interpretative ability of the reasoning relationship between prerequisite grades and students' performance, the present study also hypothesized that students' performance in Principles of Financial Accounting (II) would be influenced by students' performance in Principles of Financial Accounting (I). While correlation measures the degree to which two or more variables are related, regression analysis involves identifying the relationship between the dependent variable and one or more of the independent variables. Accordingly, we trust that examining the influence of students' performance in Principles of Financial Accounting (I) on students' performance in Principles of Financial Accounting (II) is imperative to the present study; consequently, the second null hypothesis was developed:


RESEARCH METHODOLOGY

The participants of this study were 147 students who were enrolled in four sections of Principles of Financial Accounting (II) at the College during the 2012/2013 academic year. Two of the sections consisted entirely of male students (a total of 70 students), and two sections consisted entirely of female students (a total of 77 students).

The four sections were specifically selected in order to avoid confounding effects that might affect the study's findings. All these sections were taught by the same educator (the researcher), using the same textbook, the same syllabus, and similar lecture times and theaters. Moreover, all students were evaluated according to the same standards and by the same manners.

Studying at the College is based on a system of credit hours or courses, and genders are separated into two different campuses – one for male students and the other for female students. The study period is conducted in the Arabic language and lasts for two academic years; each year consists of fall, spring, and summer semesters, in addition to field training which usually takes place in the summer semester. The College's policies state that each student's performance is to be evaluated by allocating 50% of his or her overall score to semester's work, and the remainder of the score is dependent on the results of the final exam, which is comprehensive, unified, and generated by a committee from the Accounting Department.

Data were drawn from the students' registration lists at the beginning of each semester and after the withdrawal period. These lists contain some personal data such as the student's name, major, study group, and his or her civil identity number, which contains the student's date of birth. Moreover, some personal data for each student were gathered from the student's records, which were collected from the Registrar's Office. These data included information such as prerequisite grade. The ability to stratify the data based on students' gender was straightforward, since studying is segregated by gender across two different campuses. Furthermore, each student's overall score in the Principles of Financial Accounting (II) was considered.

The dependent variable in this study was each student's performance, represented by the overall score of each student in the Principles of Financial Accounting (II) (0 – 100 marks). The independent variable in this study was each student's grade in the Principles of Financial Accounting (I) (1 – 4 points). The controlling attributes in this study were; the student's gender (0 for male; 1 for female), the student's age (18 – 37 years), the student's major (0 for accounting; 1 for non-accounting).

We entered data into our personal computer and we then incorporated statistical analyses by using the Statistical Package for Social Sciences (SPSS) software. We applied descriptive statistics to describe the study findings, and we subsequently conducted a correlation analysis to examine the relationship between students' performance, the independent variable, and the controlling attributes, as well as to test the first null hypothesis to determine if it could be accepted or rejected. We also employed a multi-regression model to examine the influence of the independent variable on the dependent variable (students' performance), as well as to test the second null hypothesis to determine if it could be accepted or rejected.

RESULTS AND ANALYSIS

Descriptive Statistics

Table (1) presents the number of enrolled, withdrawn, and net number of students by gender. The total number of enrolled students was 147; 36 students withdrew from the course (24.49%), which left a net number of 111 students. The total number of enrolled male students was 70 (47.62%); 19 withdrew (27.14%), which left a net
number of 51 male students. The total number of enrolled female students was 77 (52.38%); 17 withdrew (22.08%), which left a net number of 60 female students.

The total number of enrolled accounting students was 40 (27.21%); 11 students withdrew from the course (27.50%), which left a net number of 29 students. The total number of enrolled non-accounting students was 107 (72.79%); 25 withdrew (23.36%), which left a net number of 82 non-accounting students. The students’ ages ranged from 18 – 37 years old, with an average age of 21.045 years. The prerequisite grade ranged from 1 – 4 points, with an average of 1.78 points.

### TABLE 1. DESCRIPTIVE STATISTIC

<table>
<thead>
<tr>
<th>Gender</th>
<th>Accounting Major</th>
<th>Other Majors</th>
<th>Total</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>En* Wd* Net*</td>
<td>En Wd Net</td>
<td>En Wd Net</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Male</td>
<td>27 9 18</td>
<td>43 10 33</td>
<td>70 19 51</td>
<td>44.71</td>
<td>10.90</td>
</tr>
<tr>
<td>Female</td>
<td>13 2 11</td>
<td>64 15 49</td>
<td>77 17 60</td>
<td>45.95</td>
<td>13.10</td>
</tr>
<tr>
<td>Total</td>
<td>40 11 29</td>
<td>107 25 82</td>
<td>147 36 111</td>
<td>45.38</td>
<td>12.10</td>
</tr>
<tr>
<td>Mean</td>
<td>45.00</td>
<td>45.51</td>
<td>45.38</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td>SD</td>
<td>10.75</td>
<td>12.60</td>
<td>12.10</td>
<td>=</td>
<td>=</td>
</tr>
</tbody>
</table>

* En = Enrolled students / Wd = Withdrawal students / Net = Net students.

Table (1) also presents the mean and standard deviation (SD) of male and female students’ final scores as well as by major. The female students' mean ± SD was 45.95 ± 13.10 out of 100 marks, while the male students’ mean ± SD was 44.71 ± 10.90 marks. The non-accounting major students’ mean ± SD was 45.51 ± 12.60 marks, while the accounting major students’ mean ± SD was 45.00 ± 10.75 marks.

### Correlation Analysis

Table (2) reveals that the only factor that was correlated with a student’s performance was prerequisite grade, with a positive and significant relationship (R = .761, P < .000), while students’ gender, age, and major did not show any significant correlations with academic performance. Accordingly, the first null hypothesis was rejected.

### TABLE 2. CORRELATION ANALYSIS

<table>
<thead>
<tr>
<th></th>
<th>Total score</th>
<th>Prerequisite grades</th>
<th>Gender</th>
<th>age</th>
<th>major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total score</td>
<td>Pearson Correlation</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prerequisite Grades</td>
<td>Pearson Correlation</td>
<td>.761**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Pearson Correlation</td>
<td>.051</td>
<td>.157</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Pearson Correlation</td>
<td>-.010</td>
<td>.050</td>
<td>.111</td>
<td>1</td>
</tr>
<tr>
<td>Major</td>
<td>Pearson Correlation</td>
<td>.019</td>
<td>.111</td>
<td>.192*</td>
<td>.239*</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

### Regression Results

Table (3) presents the model summary that shows the R, the R-squared, the adjusted R-squared, and the standard error of the estimate. These measures indicate that the regression model is a good fit. Table (4) presents an analysis of variance (ANOVA), which shows the sum of squares, the degrees of freedom, the mean square error, the F ratio, and the significance level. Table (5) presents the beta coefficients, the t-values, the significance, and the variance inflation factor (VIF) as well as Tolerance.

### TABLE 3. MODEL SUMMARY

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of Estimate</th>
</tr>
</thead>
</table>

TABLE 4. ANOVA\(^b\)

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>9473.082</td>
<td>4</td>
<td>2368.270</td>
<td>37.846</td>
<td>.000</td>
</tr>
<tr>
<td>1 Residual</td>
<td>6633.026</td>
<td>106</td>
<td>62.576</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16106.108</td>
<td>110</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\) Predictors: (Constant), major, prerequisite grade, sex, age.

\(^b\) Dependent Variable: total score.

The outcomes of the multi-regression model verify that prerequisite grades significantly influenced students' performance when studying Principles of Financial Accounting (II). Table (4) and Table (5) present the multi-regression values for students' prerequisite grades (Beta = .777 and t = 12.272, P < .000; and F = 37.846, P < .000). Consequently, the second null hypothesis was rejected.

TABLE 5. COEFFICIENTS\(^a\)

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>28.891</td>
<td>5.061</td>
<td>5.709</td>
<td>.000</td>
</tr>
<tr>
<td>Prerequisite grade</td>
<td>11.011</td>
<td>.897</td>
<td>.777</td>
<td>12.272, .000</td>
</tr>
<tr>
<td>1 Gender</td>
<td>-1.403</td>
<td>1.554</td>
<td>-.058</td>
<td>-.903, .368</td>
</tr>
<tr>
<td>1 Age</td>
<td>-.112</td>
<td>.235</td>
<td>-.031</td>
<td>-.476, .635</td>
</tr>
<tr>
<td>1 Major</td>
<td>-1.353</td>
<td>1.792</td>
<td>-.049</td>
<td>-.755, .452</td>
</tr>
</tbody>
</table>

\(^a\) Dependent Variable: total score.

This result is comparable with the results of (Yunker and Yunker, 2003 Al-Twajry, 2010; Alanzi, 2012), which found a significant influence of prerequisite grade on students' performance. However, this result is in contrast to the results of (Christensen et al., 2012; Alanzi, 2014) which did not find a significant influence of prerequisite grades on students' performance.

Potential multicollinearity between independent variables is a matter of concern. Multicollinearity occurs when the independent variables are so highly correlated with each other that they cause some complexities in assessing the individual effects of an independent variable upon the dependent variable. Referring to Table (2), Pearson's correlation matrix for the independent variables demonstrates that moderate intercorrelations exist between the independent variables, particularly between prerequisite grades and students' performance. However, the variance inflation factors (VIFs) in the regression model, which are shown in Table (5), were less than 2.0; scores less than 2.0 are considered to be low enough in order to be acceptable. Moreover, tolerances of the independent variables in the regression model, which are shown in Table (5), fell between .910 and .968, which are high enough to be regarded as acceptable; as such, multicollinearity does not appear to be a serious problem in this case.

SUMMARY AND CONCLUSIONS

The objective of this study was to perform an empirical investigation of the influence of prerequisite grades on academic performance among students studying Principles of Financial Accounting (II) at the College of Business Studies in Kuwait.

The results of this study indicated that there was a statistically significant positive relationship between prerequisite grades and students' performance, which explained the significant influence of prerequisite grades on students' performance.
The study findings have a number of practical implications for both administrators and instructors. For administrators, these findings have practical implications on how the administrations of the College of Business Studies (and other similar educational institutions) should take action. It would make them aware of the impacts of the factor under investigation (prerequisite grades) on academic performance when learning Principles of Financial Accounting (II) and subsequence advanced accounting courses. Consequently, administrators would be able to improve their ability to design more effective plans to enhance students’ learning experiences and, in turn, their performances in those courses, leading to improvements in their overall academic performance. For instructors, this study would indicate which students might perform poorly in Principles of Financial Accounting (II), which would, in turn, lead to taking the necessary actions to enhance these students’ performances in these courses, such as the use of different teaching strategies, course contents, and assessment approaches.

Due to data availability, generalization of the study findings is a matter of concern, since the sample was comprised of a group of students from one educational institution alone. However, despite that, this study makes significant contributions to existing knowledge in the area of students’ performance by supporting the theoretical expectation of the influence of prerequisite grade on students’ performance. Accordingly, reexamining the influence of prerequisite grades on students’ performance in other accounting subjects (and in different educational environments) is recommended. Another potential avenue for future research is to use the results of this study for another comparative research study.

REFERENCES


