

The Influence of Time-lag on Student Performance: Evidence from Kuwait

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The purpose of this study was to perform an empirical investigation of the influence of time-lag on student performance. The study compared the performance of persisting students, who enrolled in Principles of Financial Accounting (II) immediately after completion of Principles of Financial Accounting (I), with the performance of non-persisting students, who waited at least one semester after completion of part (I) to enroll in part (II). The study tracked 142 students who were enrolled in three sections of Principles of Financial Accounting (II) at the College of Business Studies in Kuwait during the 2009/2010 academic year. This study attempts to fill some of the gaps in the existing local and regional accounting education literature and to provide comparative evidence for the harmonization of international accounting education. The results indicate that there was a statistically significant negative relationship between time-lag and student performance which explained the superiority of the performance of persisting students over the performance of non-persisting students. The study recommends expanding time-lag researches in other accounting subjects and in different educational environments.

Keywords: Accounting Education, Principles of Financial Accounting, Student Performance, Time-lag.

1. Introduction

Accounting education is a professional education that is differentiated from education in some other fields of knowledge as it is based on "Lifelong Learning" which aims to teach the needed skills of acquisition and retention of knowledge (AECC, 1990; IFAC, 1996). Its educational attainment is accumulated (Chiou, 2008) in a hierarchical nature (Laing, 2010). "Accounting is a subject that builds upon itself, and it is imperative that students have a solid foundation and understanding of the principles of accounting before moving on to more advanced accounting topics" (Sanders and Willis, 2009: 319).

Learning Principles of Financial Accounting has garnered considerable attention from both educational and professional bodies for a long time as it represents the cornerstone upon which to build academic and professional success later in life (AECC, 1992). Moreover, it is viewed as a gateway to the professional world of accountancy, and it 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). Furthermore, it is identified as a critical course for both accounting majors and other business majors (AECC, 1992).

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In the past few years, the College of Business Studies (the College hereafter), one of the five colleges of the Public Authority for Applied Education and Training in Kuwait, has experienced an unusual phenomenon, after introducing its new registration system. The new registration system allows students to register, as well as add and withdraw from subjects freely through the Internet without referring to their supervisors. The absence of active supervision accompanied with the unfamiliarity of students using the College education system creates a situation where many students do not enroll immediately in the second part of Principles of Financial Accounting after completing the first part, which has been reflected in lower levels of educational attainment and increased withdrawal rates from the course.

It is evident from the foregoing that learning the Principles of Financial Accounting is crucial to all business majors and any time-lag, which is the time that elapses between the completion of the first part and the enrollment in the second part, is assumed to affect student performance in the second part. Accordingly, it is believed that investigating this issue is worthwhile.

The purpose of this study was to perform an empirical investigation of the influence of the time-lag between studying the two parts of the Principles of Financial Accounting on student performance in learning the second part.

We compared the performance of persisting students, who enrolled in Principles of Financial Accounting (II) immediately after completion of Principles of Financial Accounting (I), with the performance of non-persisting students, who waited at least one semester after completing part (I) to enroll in part (II). The study tracked 142 students who were enrolled in three sections of Principles of Financial Accounting (II) at the College during the 2009/2010 academic year. The students were divided into two groups: one included students who persisted in studying the two parts of Principles of Financial Accounting (persisting group), and the other included students who did not persist in studying the two parts (non-persisting group). The dependent variable was student performance measured in terms of the overall score of the second part, and the independent variable was time-lag. The results indicated that there was a statistically significant negative relationship between time-lag and student performance, which explained the superiority of the performance of persisting students over the performance of non-persisting students. This outcome cannot be compared with any previous study, since this study is the first of its kind.

Our study addressed some of the shortfalls in the existing local and regional accounting education literature resulting from the scarcity of prior studies (Al-Twajiry, 2010); we attempted to provide comparative evidence for the harmonization of international accounting education. Furthermore, we are unaware of any previous empirical studies examining the influence of time-lag on student performance in learning the Principles of Financial Accounting. Moreover, we focused on learning performance of the Principles of Financial Accounting. As such our study was considered to be within the students' attitude body of research, which attracts extraordinary attention from the international and American professional bodies (AECC, 1990; IFAC, 2009). Our study also sought to improve the level of output of the College, one of the tributaries of accounting education in Kuwait, which will be reflected in the Kuwaiti accounting profession. For all of the above, we believe that this

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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. Literature Review and Hypotheses Development covers earlier studies relevant to the factors influencing academic performance of students' learning of the Principles of Financial Accounting. Research Methodology describes the data collection and data processing procedures. Results and Analysis discusses and analyzes the findings of the research. Summary and Conclusions summarizes the study, notes its limitations, and provides guidelines for future studies.

2. 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 research on the factors influencing student performance when learning the Principles of Financial Accounting.

Factors influencing student performance when learning the Principles of Financial Accounting are many and diverse. Their effectiveness, relevance, and impact vary according to the variation of the research environment. Accounting education scholars 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 experience, high school GPA and experience, motivation and expectations, study approaches, lecture attendance (absenteeism), 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). However, the outcomes of these studies have not provided strong and consistent evidence regarding student performance, which has encouraged further research in this area. Moreover, none of these studies have examined the influence of time-lag on student performance, which has motivated to conduct this study. Some of the relevant studies to the current study are referenced below.

Eskew and Faley (1988) investigated the relationship between students' performance on Principles of Financial Accounting (I) and pre-college accounting studies at the high school level, while taking into account some other factors such as previous collegiate academic experience and motivation. They found that all of these factors were positively correlated with learning the Principles of Financial Accounting.

Doran et al. (1991) examined the relationship between performance on Principles of Financial Accounting (I and II) while exploring other factors such as gender, GPA, prerequisite grade, student's major, and pre-college accounting studies. They found that pre-college accounting studies affected the performance of the first part of Principles of Financial Accounting, but did not affect the second part. They also found that male students' performances were better than female students' performances in the first part but not in the second part.

Gul and Fong (1993) investigated the relationship between performance on Principles of Financial Accounting (I) and students' personality types along with some other

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factors such as the intention to obtain a business degree, pre-college accounting studies, and high school grades in English and Math. They found that each of these factors were important in predicating student performance.

Tho (1994) examined the relationship between performance on the Principles of Financial Accounting and residential status of students (urban–rural) along with some other factors such as gender and pre-college accounting, math, and economics studies. The study found that having studied high-school accounting, math and grades in high-school economics were important predictors of performance; however, there was no significant relationship between student performance and residential status or gender.

Wooten (1998) investigated the impact of the student's aptitude and effort on performance in Principles of Financial Accounting (I), using students' ages as a distinguisher between traditional (young) and non-traditional (old) students. The study found that the aptitude and effort factors were in favor of traditional students.

Hill (1998) examined the relationship between performance on Principles of Financial Accounting (I and II) and the size of the class in terms of the number of students enrolled. The author also included some other factors such as the intention to major in accounting and students' perceptions of class size. The study found that students in large classes outperformed students in small classes when controlling for GPA and lecture attendance.

Elias (2005) investigated the effect of study approaches, exploring how deep or surface study approaches affected student performance while students learned the Principles of Financial Accounting and the Principles of Managerial Accounting. The results indicated that female, non-traditional, accounting major, and other non-business major students using a deep studying approach was positively correlated with student performance and GPA.

Bealing et al. (2009) examined the relationship between performance on Principles of Financial Accounting (I) and type of learning through determining the personal desires of students. The study hypothesized that personality type determines a student's ability to perform well in the accounting program. The study positively correlated students' success with six questions of the Keirsey Temperament Sorter, which could be used to supervise and guide students to the right path to success in this subject.

Mohrweis (2010) investigated the relationship between each student's age and performance on Principles of Financial Accounting (I) with three controlling attributes: GPA, gender, and class timing. The study found that the performance of non-traditional students was better than the performance of traditional students, and there was a significant positive correlation between performance and student's age.

It is obvious from the above studies that the interest and concern in this area of research has diversified, and the findings are quite variable as well. This could be justified as these studies were conducted in different environments, which plays an essential role in the use of particular inclusion and exclusion criteria. The decision to include or exclude factors in any study requires wide experience in the surrounding environment of the research population; accordingly, we believe that examining the

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influence of time-lag on student performance is no less important than any other factor.

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 current study hypothesized that student performance would be influenced by the elapsed time between studying Principles of Financial Accounting (I) and Principles of Financial Accounting (II). Accordingly, the aptitudes of the inputs of learning the second part are not equal, which would be reflected on the outputs of learning. This statement needs to be examined; if this statement is true then the performance of the persisting group would be better than the performance of the non-persisting group. For the purpose of this study, student performance was measured by the student's overall score.

H1₀: There is no significant difference between the performance of the persisting group and the performance of the non-persisting group when learning Principles of Financial Accounting (II).

In order to boost the interpretative ability of the reasoning relationship of the above difference or non-difference, examining correlation between the independent variable (time-lag) and dependent variable (student performance) is believed to be a necessity.

H2₀: There is no statistically significant correlation between time-lag and student performance in learning Principles of Financial Accounting (II).

In order to test the above hypotheses to be accepted or rejected and to achieve the primary objective of this study, research methodology will be described in the next section.

3. Research Methodology

The subjects of this study were 142 students who were enrolled in three sections of Principles of Financial Accounting (II) at the College during the 2009/2010 academic year. Studying at the College is based on a credit-hours or courses system, and genders are separated into two different campuses – one for male students and the other for female students. Studying is done 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.

Studying the two parts of Principles of Financial Accounting is compulsory for all business majors, except for students majoring in Law who study just the first part. 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 College policies state that student performance is to be evaluated by allocating 50% of the overall score to semester's work, and the rest is dependent on the result of the final exam, which is comprehensive, unified, and generated by a committee from the Accounting Department.

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

Students were divided into two groups. One group included students who enrolled directly after completing the first part (persisting group). The other group was comprised of students who did not pursue studying the second part directly after completing the first part, and who enrolled after a time-lag of at least one semester (non-persisting group).

Data were drawn from the students' registration lists at the beginning of each semester and after the withdrawal period. Moreover, some personal data for each student were gathered from the students' records that were collected from the Registrar Office to identify the time-lag for each student. Furthermore, the overall score in the Principles of Financial Accounting (II) for each student was considered.

The dependent variable in this study was student performance represented by the overall score of each student (0 – 100 marks). The independent variable in this study was time-lag, which was measured in terms of students groups (0 for the persisting group, 1 for the non-persisting group) and in terms of semesters that elapsed between studying the two parts of Principles of Financial Accounting (0–6 semesters).

Data was entered into the researcher's personal computer and then statistical analyses were done by using Statistical Package for Social Sciences (SPSS). A descriptive statistic was used to describe the study findings, while a t-test was employed to examine the significance of the performance difference between the two groups and to test the first hypothesis. In addition, a correlation analysis was done on the relationship between time-lag and student performance.

4. Results and Analysis

4.1 Descriptive Statistic

Table (1) shows the number of students in terms of total, withdrawal, and net numbers. The total enrolled persisting students numbered 67 (47.2%), 7 students withdrew (10.4%), and net students numbered 60. The total enrolled non-persisting students numbered 75 (52.8%), 12 students withdrew (16%), and net students numbered 63 students. 33 (55%) persisting students passed the course, while just 18 (28.6%) non-persisting students passed the course.

Table (1) also shows the overall total score, mean, and standard deviation (SD) for all students. The mean score of persisting students was 60.175 marks (out of 100 marks) with a SD of 19.536 marks. The mean score of non-persisting students was 44.857 marks with a SD of 18.355 marks, resulting in a difference between the two means of more than 15%.

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Table 1: Descriptive Statistic

Score	Code	Point	persisting	Non persisting	Total
95 > 100	A	4.00	0	0	0
90 > 95	A -	3.67	6	0	6
86 > 90	B+	3.33	3	0	3
83 > 86	B	3.00	6	0	6
80 > 83	B -	2.67	3	0	3
75 > 80	C+	2.33	3	0	3
70 > 75	C	2.00	0	9	9
66 > 70	C -	1.67	3	3	6
63 > 66	D+	1.33	0	6	6
60 > 63	D	1.00	9	0	9
> 60	**F	0.00	27	45	72
Net	=	=	60	63	123
Withdraw	=	=	7	12	19
Total	=	=	67	75	142
Mean	=	=	60.175	44.857	52.329
Standard Deviation	=	=	19.536	18.355	20.369

** Includes: (F) failed in the course, (FA) failed due to not attending the final exam and (HM) failed due to not maintained the required lecture attendance rate.

4.2 Analysis of Differences and Correlations

Table (2) shows the degree and significance of difference between the performances of the two groups. It is obvious that the difference was statistically significant. The outcome of the t-test is ($T = 4.48$, $P < .000$). The difference in performance was in favor of the persisting group; accordingly, the first null hypothesis was rejected since there was a significant difference between the performance of the persisting group and the performance of the non-persisting group when learning Principles of Financial Accounting (II).

Table (3) presents the results of the correlation between the independent variable (time-lag) in terms of semesters and the dependent variable (student performance). The outcome of this analysis indicated that there was a significant negative relationship between time-lag and student performance ($R = -.514$, $P < .000$). This result signified that as the time-lag increased, performance decreased and vice versa. Accordingly, the second null hypothesis was rejected since there was a statistically significant correlation between time-lag and student performance in learning Principles of Financial Accounting (II).

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Table 2: Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Total Equal score variances assumed	.353	.554	4.483	121	.000	15.31786	3.41650	8.554	22.082
Equal variances not assumed			4.477	119.52	.000	15.31786	3.42174	8.543	22.093

T-TEST // TESTVAL = 0 / MISSING = ANALYSIS / VARIABLES = TOTAL SCORE / CRITERIA = CI (.95).

Table 3: Correlations

		Total score	Time-lag By semesters
Total score	Pearson Correlation	1	-.514 ^{**}
	Sig. (2-tailed)		.000
	N	123	123
Time-lag By semesters	Pearson Correlation	-.514 ^{**}	1
	Sig. (2-tailed)	.000	
	N	123	123

^{**}. Correlation is significant at the 0.01 level (2-tailed).

It is evident from the foregoing that the number of non-persisting students was higher than the number of persisting students, which suggests that the prevalence of this situation among students in the College has become a phenomenon that requires the intervention of the College Administration to take action to curb the spread of this phenomenon for the benefit of both the College and students. It is also clear that the rate of withdrawal of non-persisting students was greater than the rate of withdrawal of persisting students. Furthermore, non-persisting students had a lower rate of success and lower mean than persisting students. Moreover, a 15 % difference between the two means coupled with a T value of 4.48 concluded that the difference between the performances of the two groups was statistically significant. Likewise, the relationship between time-lag and student performance was significantly negatively correlated, which explained the superiority of the performance of persisting students over the performance of non-persisting students.

5. Summary and Conclusions

The purpose of this study was to perform an empirical investigation of the influence of the time which elapsed between studying the two parts of Principles of Financial Accounting on the academic performance of students enrolled in Principles of Financial Accounting (II) at the College of Business Studies in Kuwait.

The study found that the number of non-persisting students was greater than the number of persisting students. The results of this study indicated that there was a statistically significant negative relationship between time-lag and student

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performance, which explained the superiority of the performance of persisting students over the performance of non-persisting students.

The outcomes of this study cannot be compared with any previous study, since this study is the first of its kind. Moreover, generalization of these findings is a questionable issue, since this study is considered to be an exceptional case in terms of place and time. Consequently, reexamining the influence of time-lag on student performance in other accounting subjects that are divided into two courses is recommended. Reexamining the effect of time-lag on student performance in different educational environments is also recommended. Another potential avenue for future research is to reexamine the relationship between the elapsed time between studying the two parts of advanced accounting courses in other locales and overall student performance. For instance, it would be useful to explore the relationship among the time-lag occurring between Principles of Financial Accounting (II) and Intermediate Financial Accounting (I), or Cost/Managerial Accounting.

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