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Using the Student Learning Framework to Explore the Variation in Academic Performance of European Business Students

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ABSTRACT *The primary focus of this study is to explore the variation in academic performance of European Business (EB) students, using the student learning framework. Prior research has shown that students' approaches to learning and preferences for teaching influence the quality of their learning outcomes. The Approaches and Study Skills Inventory for Students (ASSIST) is used in this study to obtain quantitative information about students' approaches to learning and preferences for teaching. Academic performance is represented by students' average mark across all first-year modules. The results show that high-achieving students are more likely to adopt a strategic approach to learning and have a preference for teaching that supports understanding. They are less inclined to adopt an instrumental approach to learning.*

Introduction

In the last 20 years, higher education in Ireland and elsewhere has become increasingly internationalised (Kyok & Arpan, 1994; Duke & Victorova, 1998; DeVita, 2002). Universities now offer a range of international programmes to a diverse student population. This change in the academic environment has been particularly pronounced in business schools and creates new pedagogic challenges for business educators. To ensure a quality learning experience is provided to all students, there is a need to develop a greater understanding of student learning and academic performance within the context of international business education. To date, little research has been conducted in this setting. This is somewhat surprising given the growing body of work emphasising the necessity to explore student learning within specific disciplinary settings (Entwistle & Ramsden, 1983; Meyer, 1999; Meyer & Eley, 1999; Neumann, 2001; Lucas, 2001).

Using a student learning framework, this study explores the academic performance of students on the European Business (EB) programme at Dublin City

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University (DCU). In so doing, it seeks to contribute to the wider agenda of understanding the process of learning within international business education. The EB programme at DCU operates in conjunction with the International Partnership of Business Schools [1] (IPBS). Students undertake two years of study in their home institution and two years in one of the partner institutions. The programme facilitates the study of business and languages in an international environment and students are immersed in the cultural and academic life of another country during their time at a partner institution.

The current study builds on earlier research that examined EB students' approaches to learning (Byrne *et al.*, 2002a). It specifically investigates the extent to which approaches to learning and preferences for teaching are related to academic performance and identifies factors distinguishing high- and low-achieving students. The paper begins by describing the framework for the study. This is followed by an explanation of the data collection procedures. The results are then presented and discussed and the paper concludes by considering implications for future research.

Learning Outcomes, Learning Approaches and Teaching Preferences

Since the 1970s, research on learning within higher education has focused on developing an understanding of the learning process from the perspective of students. Pioneering researchers in this field recognised that in order to understand why some students learn 'better' than others, there was a clear need to explore the way students learn. The resultant body of research has explicitly demonstrated that students' learning achievements (learning outcomes) are strongly affected by the ways they set about learning tasks (learning approaches), which in turn are influenced by a range of personal and learning context factors (Marton & Booth, 1997). This complex learning process is depicted in Figure 1.

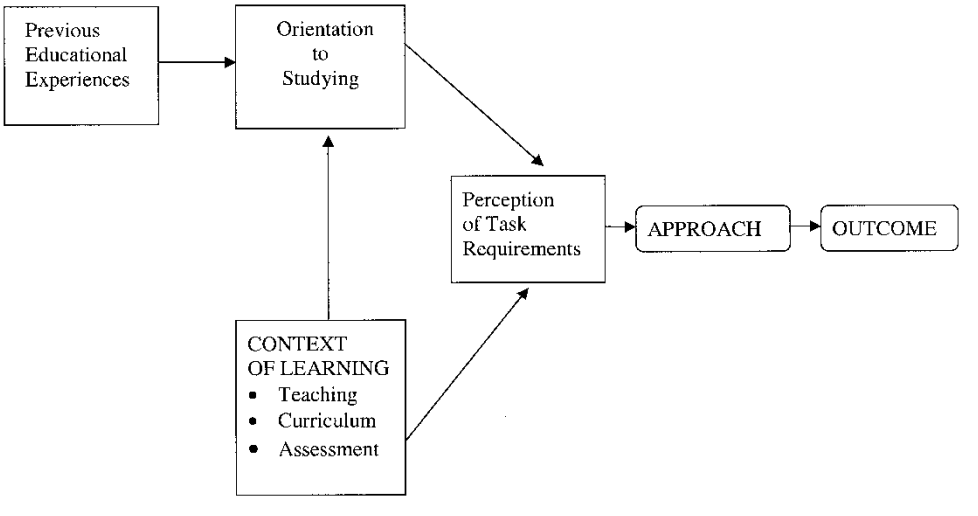

FIG. 1. Student learning in context. *Source*: Ramsden (1992, p. 83).

Given the multifaceted nature of this learning process, it is impossible for any single study to explore all aspects. Rather, researchers usually focus on individual elements with the hope that the combined body of research enhances understanding of student learning in context. This study examines variation in students' learning outcomes by exploring the influence of their learning approaches and their preferences for teaching.

Despite extensive research within the student learning paradigm, the nature of a learning outcome is not widely defined. Entwistle (1997, p. 3) describes the outcome of learning as 'what students can demonstrate of their increases in knowledge and changes in understanding as a result of their experiences in school or college'. The degree of understanding achieved by students from their learning experiences in higher education, and their ability to demonstrate this understanding, are commonly represented by their performance in assessments and examinations. Traditionally, researchers who have attempted to explore variation in academic performance have focused on biodata, such as gender, prior knowledge, scholastic ability, and mathematical ability (e.g. Lavin, 1965; Larson & Scontisino, 1976; Koh & Koh, 1999; Hoefer & Gould, 2000; Boyle *et al.*, 2002). While such research has yielded some interesting results, the literature on student learning offers additional scope to enhance educators' understanding of the factors underpinning quality learning and the achievement of high quality learning outcomes.

Approaches to learning are a critical determinant of the quality of learning outcomes achieved. A learning approach describes the way students relate to a learning task. It captures both their intentions regarding the task and the activities by which they address the task (Entwistle, 1997). Early phenomonographic research exploring variation in learning approaches, identified two principal approaches, namely, a deep approach and a surface approach (Marton & Saljo, 1976). Students adopting a deep approach set out with the intention of understanding the material. They interact critically with the arguments put forward, relating them to their prior knowledge and experience and evaluating the extent to which conclusions are justified by the evidence presented. In contrast, students employing a surface approach start out with the intention of memorising facts in an unrelated manner. They do not interact personally with the material and are constrained by the specific task. In a later study, Ramsden (1979) identified a third approach to learning—a strategic approach, which describes the intentions and activities of students who are primarily concerned with achieving the highest possible grades. They use both deep and surface approaches, as appropriate, and have a competitive and vocational motivation. In the seminal work of Marton and Saljo (1976), it was found that students who adopted a deep approach to learning achieved a high level of understanding, whereas students adopting a surface approach demonstrated a poor level of understanding. These findings were confirmed in other phenomonographic studies (Dahlgren, 1984; Prosser & Millar, 1989). In further research, questionnaires have been used to quantitatively capture students' learning approaches and a variety of measures for learning outcomes have been employed. On the whole, these studies corroborated the results of the phenomonographic work regarding the relationship between students' learning approaches and learning outcomes (Biggs, 1979; Trig-

well & Prosser, 1991a, b; Watkins & Hattie, 1981; Sadler-Smith, 1996; Booth *et al.*, 1999, Byrne *et al.*, 2002b).

Learning approaches have been found to be dynamic in nature and highly sensitive to the context in which learning occurs (Ramsden, 1987; Prosser & Trigwell, 1999). As illustrated in Figure 1, the teaching context influences students' learning approaches. Two distinct approaches to teaching have been identified which vary on two dimensions, namely, whether teachers are self-focused or student-focused and whether they are intent on transmitting knowledge or fostering conceptual change in students' understanding (Dall'alba, 1991; Prosser *et al.*, 1994; Prosser & Trigwell, 1997). Not surprisingly, it has been demonstrated that teacher-focused/information transmission approaches to teaching are related to surface learning approaches among students, whereas student-focused/conceptual change teaching approaches are associated with deep approaches to learning (Prosser & Trigwell, 1999). Entwistle and Tait (1990) reported that students who express a preference for teaching approaches which support understanding usually engage in deep approaches to learning leading to high quality learning outcomes. In contrast, those who favour information transmission teaching tend to adopt surface approaches to learning resulting in unsatisfactory learning outcomes.

As outlined, research into student learning has the potential to explain the variation in academic performance. However, it appears that such a framework has not been applied in the domain of international business education. This is surprising given the growth in international programmes and the many calls to investigate student learning issues in specific disciplines and settings. This study hopes to reduce this research deficit and to offer business educators valuable insights into the factors influencing their students' academic performance.

The Research Study

This study examines the variation in the academic performance of first-year EB students by:

- exploring the empirical relationship between approaches to learning, preferences for teaching and academic performance, and
- identifying the factors which distinguish high achieving from low achieving students.

Measuring Learning Approaches and Preferences for Teaching

The Approaches and Study Skills Inventory for Students (ASSIST) is used to gather information on approaches to learning and preferences for teaching (ASSIST, 1997). This instrument is the most recent version of the Approaches to Studying Inventory (Entwistle *et al.*, 1979; Ramsden & Entwistle, 1981; Entwistle & Ramsden, 1983) and it measures students' approaches to learning on three dimensions or main scales: deep, strategic and instrumental (surface apathetic) (Tait *et al.*, 1998). Students indicate their agreement to 52 statements, using a 5-point Likert scale

where 1 = disagree and 5 = agree. The statements are combined into subscales and then grouped into the three main scales. The ASSIST was previously validated for use in an Irish context using a sample of first-year accounting and business students (Byrne *et al.*, 1999). Duff (2001) recommends that the internal consistency of new data should be presented when relying on a previous validation. In the current study the derived Cronbach's alpha coefficients are 0.85 for the deep scale, 0.81 for the strategic scale and 0.85 for the instrumental scale, indicating high internal reliability.

The ASSIST includes eight statements that measure students' preferences for different types of teaching, to which students respond using a 5-point Likert scale where 1 = definitely dislike and 5 = definitely like. The responses may be combined to reflect two distinct preferences for teaching, one that focuses on transmitting information and one that encourages understanding. The alpha values of 0.59 for teaching that encourages understanding and 0.78 for teaching that transmits information, indicate reasonable levels of internal reliability, and thus the combined scores are used in this study.

Measuring Learning Outcomes

Following the approach in Entwistle and Tait (1990), the average mark across all first-year modules is used to measure the learning outcome. While it is recognised that more qualitative measures of learning outcomes may be better indicators of student learning, marks achieved in well designed assessments provide an appropriate measure (Trigwell & Prosser, 1991b; Prosser & Trigwell, 1999). Furthermore, many other studies have used examination results as the measure of learning outcome in exploring the link with learning approaches (Entwistle *et al.*, 1979; Watkins & Hattie, 1981; Watkins, 1982; Ramsden *et al.*,1986; Trigwell & Prosser, 1991a, b; Sadler-Smith, 1996; Byrne *et al.*, 2002b).

Sample and Data Collection

This study was conducted with two cohorts of first-year students on the EB programme at DCU. This group comprised students recruited by DCU and by the German and Spanish partner institutions. The ASSIST was distributed at a lecture towards the end of the second semester. Before completing the questionnaire, the purpose of the study was verbally explained to the students and they were reassured that their responses would only be used for research purposes. There was a potential population of 106 students. Completed questionnaires were received from 83, resulting in a response rate of 78%. Details of the students' marks were extracted from the record system of the university. Table I shows the sample, analysed by gender and nationality.

Results and Discussion

The average marks achieved by the students across all first-year modules ranged from 43.80 to 77.20, with a mean of 60.23 and a standard deviation of 8.05. Table

TABLE I. Sample by nationality and gender

	Irish	German	Spanish	Total
Female	44	4	1	49
Male	17	11	6	34
	61	15	7	83

II shows the mean scores for the approaches to learning and preferences for teaching.

Regarding approaches to learning, it is pleasing to note that the highest score is on the deep scale and the lowest is on the instrumental scale. A Wilcoxon paired sample test reveals that the difference in these scores is significant at the 5% level. No other differences between the approaches' scores are significant. There is a significant difference in the preferences for teaching, with students favouring teaching that focuses on the transmission of information rather than that which supports the development of understanding. To examine the relationships of approaches to learning and preferences for teaching with academic performance, a correlation analysis was conducted. Table III presents the Spearman correlation matrix.

The correlation results show a highly significant positive relationship between a strategic approach and performance and a significant positive relationship between teaching that supports understanding and performance. In contrast, the instrumental approach is significantly negatively correlated with performance. Thus, students who take a strategic approach to learning and prefer teaching that supports understanding are successful, whereas taking an instrumental approach has an adverse affect on performance. The lack of a significant positive relationship between a deep approach and performance is disappointing, but is consistent with the results of other research studies. Prior studies that have used quantitative measures of learning outcomes have generally confirmed the negative association between surface approaches and outcome while no relationship or only a weak relationship with the deep approach has been observed (Ramsden & Entwistle, 1981; Watkins, 1982;

TABLE II. Mean variable scores

	Mean
Average Mark (%)	60.23
Approaches to Learning (Maximum score 20)	
Deep	13.89
Strategic	13.55
Instrumental	12.68
Preferences for Teaching (Maximum score 20)	
Supporting understanding	14.52
Transmitting information	16.62

TABLE III. Correlation matrix

	Deep	Strategic	Instrum.	Pref A	Pref B
Average Mark	*.02*	*.29***	*−.28**	*.22**	*−.16*
Learning Approaches					
Deep		.32**	−.25*	.70**	−.21
Strategic			−.28*	.36**	−.23*
Instrumental				−.26*	.39**
Preferences for Teaching					
Supports understanding (Pref A)					−.21
Transmits information (Pref B)					

**significant at the 1% level
*significant at the 5% level

Booth *et al.*, 1999). One plausible explanation for these findings may be the failure of assessments and examinations to reward a deep approach to learning. Such a situation is more likely to arise in year one of a programme, when course content is less challenging and conceptually demanding. To explore this issue further there is a need to examine the nature and objectives of the assessments on the programme and to ensure that they foster high quality learning. It is also possible that the absence of a relationship between a deep approach and performance may arise because students who favour a deep approach fail to recognise the specific demands of the assessments. Qualitative research is required to provide insights into students' perceptions of assessments.

In an effort to gain a greater insight into the factors associated with academic performance, the profiles of high- and low-achieving students were examined. This was accomplished by performing a cluster analysis, using the average mark as the cluster variable. As the objective of the cluster analysis was to group students with similar academic performance, a non-hierarchical approach was deemed appropriate (Johnson & Wichern, 1982). Thus, a K-mean clustering, which is probably the most popular non-hierarchical technique available, was performed (Kaufman & Rousseeuw, 1990). Solutions containing between two and six clusters were extracted. On review, it was clear that the four-cluster solution was the most meaningful and thus the profile of each of these clusters is presented in Table IV.

A Kruskal-Wallis test reveals high variability between the clusters for both the strategic and instrumental approaches to learning. To highlight the differences between the clusters the remaining analysis focuses on the two extreme groups. Cluster 4, labelled 'high achievers', represents those students who on average achieved first class honours. This cluster includes all of the German students, only four Irish students and no Spanish students. Cluster 2, the 'low achievers', were generally awarded a pass classification. The cluster contains 15 Irish students and three Spanish. Wilcoxon paired sample tests show that the 'high achievers' strongly favour ($p = 0.00$) a deep or strategic approach to learning over an instrumental

TABLE IV. Four clusters: Descriptive statistics and membership frequencies

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Numbers in Cluster	21	18	25	19
Average Mark	63.09	49.70	56.76	71.62
Gender:				
Male	7	8	8	11
Female	14	10	17	8
Nationality:				
Irish	19	15	23	4
German	0	0	0	15
Spanish	2	3	2	0
Mean Age:	19.10	18.56	18.44	20.68
Learning Approaches:				
Deep	14.06	13.92	13.53	14.14
Strategic	14.47	12.32	13.19	14.25
Instrumental	13.45	12.93	13.66	10.30
Preferences for Teaching:				
Supporting understanding	14.48	13.67	14.25	15.74
Transmitting information	16.48	16.89	17.40	15.44

approach and they are indifferent between the two approaches to teaching. In contrast, the 'low achievers' favour ($p = 0.03$) a deep approach over a strategic approach but show no preference between a deep and instrumental approach nor a strategic and instrumental approach. Their high mean score for the deep approach is unexpected, but it may help to explain the absence of a relationship between the deep approach and academic performance for the full sample as highlighted earlier (Table III). The 'low achievers' show a significant ($p = 0.02$) preference for teaching that focuses on the transmission of information. Mann–Whitney tests reveal significant differences for three of the variables between Clusters 2 and 4. They show that the 'high achievers' compared to the 'low achievers' are more inclined to adopt a strategic approach ($p = 0.02$), have a preference for teaching that promotes understanding ($p = 0.01$) and are far less likely to be instrumental ($p = 0.01$).

It is clear that the German students dominate the high-achieving group. While the learning variables identified above distinguish these students from the rest of the sample, other factors such as age, academic ability and prior educational experiences may also explain their outstanding performance. Some prior research has found that older students are less likely to adopt an instrumental approach to learning (Watkins, 1982; Sadler-Smith, 1996). As seen in Table IV, the mean age of Cluster 4 (20.68 years) is higher than that in Cluster 2 (18.55 years) and a Mann–Whitney test confirmed that this difference is significant at the 1% level. Several research

studies have reported a significant relationship between prior academic ability and performance in higher education (Lavin, 1965; Larson & Scontisino, 1976). The German students in this study are in the top 1% of their peers, whereas the Irish and Spanish students are not ranked quite so highly [2]. As well as prior academic performance, it is now well established that students' prior educational experiences influence their learning (Ramsden, 1992; Prosser & Trigwell, 1999). Ramsden (1992) recognises that students' orientations towards certain approaches to learning are shaped by experiences in school, particularly experiences associated with examinations. Byrne and Willis (1997, 2001) contend that public school examinations in Ireland encourage an instrumental approach to learning. This may explain why there are so few Irish students in Cluster 4, which is the least instrumental group. Further research is needed to understand the prior educational experiences of international students.

This research raises important considerations for business educators teaching on international programmes. The study reveals variation in approaches to learning and preferences for teaching and suggests that this variation may be heightened by the diversity of the student population. Programmes which attract international students, who differ in age, academic ability and educational background, are likely to result in a class mix which culminates in greater disparity in student learning than might arise in programmes which attract a more homogenous group of students. Thus, the pedagogic challenge facing educators of international students is intensified. To successfully address this challenge, business educators must adopt teaching and assessment strategies which create an environment which is conducive to deep learning. Secondly, they must be proactive in supporting students and they must seek to understand learning issues from students' perspectives. Ramsden (1985) argues that raising students' awareness of approaches to learning is an integral part of teaching, and that academics should explore how students are approaching the subject matter they teach. Students should be urged to think about their approaches to learning and preferences for teaching and to recognise the relative merits of the alternatives. Through this process, students will gain an appreciation of the importance of engaging in deep learning for both their educational success and personal development.

Conclusions

This study sought to explore the relationships between student learning and academic performance in the first year of the EB programme offered at DCU. The measure of academic performance utilised in the study was the average mark achieved by each student across all first-year modules. The student learning variables considered in the study were learning approaches and preferences for teaching, both of which were measured using the ASSIST. Overall, the variable scores indicated that EB students favoured a deep approach to learning over an instrumental approach, but they preferred teaching which focuses on the transmission of information rather than that which supports the development of understanding.

The correlation analysis revealed a highly significant positive relationship between

the strategic approach to learning and academic performance and a significant negative relationship between the instrumental approach and performance. While these results were pleasing and may have been expected, the absence of a relationship between the deep approach and academic performance is disappointing, although it is consistent with the findings of many prior studies. It is suggested that the absence of the desired relationship may be caused by a variety of factors. Firstly, it is feasible that the assessments within the programme did not sufficiently foster or reward the development of understanding. Secondly, it is possible that those students who engaged in deep learning activities failed to adapt to the specific assessment demands. Interestingly, the correlation analysis corroborated the findings of some earlier studies which delineated that students prefer teaching approaches which support their learning approaches.

The cluster analysis provided some interesting profile data regarding the 'high achievers' and the 'low achievers' within the sample. The most distinguishing feature of the learning variables was that the high-achieving students were significantly more strategic and significantly less instrumental than the low-achieving students. Furthermore, the low-achieving students preferred teaching which focused on transmitting information. Some biographical variables also distinguished the high-achieving students from their low-achieving colleagues. Firstly, the mean age of the high-achieving cluster was significantly higher than the low-achieving one. Secondly, the high-achieving cluster was dominated by German students, indeed, all German students fell into that group. These results indicated that an in-depth exploration of the prior academic ability and educational experiences of international students will be required to more fully understand the academic performance achieved on the EB programme. The findings also suggests that there is likely to be greater variation in student learning on programmes attracting a mix of international students.

In summary, this study contributes to the literature on academic performance by exploring variation in performance using a student learning framework. The findings indicate that many student learning variables are related to academic performance and they can be used, in addition to biodata, to distinguish high-achieving and low-achieving students. Through greater understanding of the relationships between learning and performance, educators may be better equipped to design intervention strategies which improve students' learning outcomes. The study also extends prior research as it is conducted in the setting of an international business programme, which is a remarkably under-researched context.

Notes

[1] The B.A. in European Business at Dublin City University is a partnership programme which is run jointly with the following members of the International Partnership of Business Schools (IPBS), the Centre d'Études Supérieures Européenes de Management (CESEM) in ESC Reims, France; ESB-Reutlingen, Germany; ICADE at the Universidad Pontificia Comillas, Madrid, Spain; Northeastern University, Boston, USA.

[2] Data provided by the EB Programme Director at DCU.

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