

A STUDY OF THE RELATIONSHIP BETWEEN ENTRY QUALIFICATIONS AND ACHIEVEMENT OF THIRD LEVEL BUSINESS STUDIES STUDENTS

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Introduction

This research is concerned with Business Studies students. It focuses on the relationship between entry qualifications and achievement in third level education. The main entry qualification requirement for a student to enter Business Studies in higher education in Ireland is the Leaving Certificate Examination (LCE) of the Department of Education. Entry qualifications laid down by Universities and Institutes of Technology require that an applicant has passed six subjects, including Mathematics and English or Irish. It is worth noting that, for some disciplines, Universities and Institutes of Technology insist on candidates having studied and achieved particular grades in their LCE in related subjects (Central Applications Office (CAO), 1998). The following are some examples: analytical science in Dublin City University (DCU) insists on a minimum of ordinary C in science; biotechnology similarly requires applicants to have an ordinary C grade in science; commerce with French in National University of Ireland Galway (NUIG) demands a higher B in French; Dublin Institute of Technology (DIT) requires a higher C in science to enter engineering; Trinity College Dublin insists on a higher B in Physics to take the theoretical Physics Degree course (CAO College Handbook, 1998).

Although there are Business Studies subjects that can be followed in the LCE, no University or Institute of Technology in Ireland requires

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a student to have studied these subjects in order to enter Business Studies Certificate, Diploma or Degree courses. This is clear from the admissions regulations of higher education institutions. The three Business Studies subjects in the LCE are Accounting, Economics and Business Organisation (renamed Business). Students select one or more of these subjects for various reasons. In the writers' view, such reasons include having studied Business Studies at Junior Certificate level, the motivation to achieve points for third level entry, the intention of taking up employment in business or the motivation to prepare for Business Studies at third level.

A typical Business Studies course, whether Certificate, Diploma or Degree in higher education, normally contains a mix of students with various backgrounds. Some will not have studied any Business Studies subject in the LCE, others will have attempted either one or two or all Business Studies subjects for two to three years or more before entering third level education.

Little research has been undertaken on the benefits or otherwise of studying Business Studies subjects prior to entering Business Studies courses in higher education in Ireland. Some academics in third level institutions argue that students with no prior knowledge of Business Studies subjects are better students in third level Business Studies courses. Examples of this can be found among some academics in the discipline. This view is supported by Professor (Lord) Robins' statement (1955) that school Economics might "spoil" the future undergraduate. It is worth noting that post-Robins (1955), the subject of Economics grew in the secondary schools in the United Kingdom. In Ireland, as in the United Kingdom, Universities and Institutes of Technology are admitting substantial numbers of students who have already covered much of the ground of the first year of some of their syllabuses (Harbury and Szreter, 1968).

Little research has been undertaken in the Irish higher education system to either substantiate or contradict these claims. One study noted that students with Accounting in their LCE achieved higher academic performance in Accounting in first year Bachelor of Commerce Accounting in University College Dublin (UCD) than their counterparts who had not studied the subject (Clarke, 1989).

In Ireland, the number of students taking Accounting, Business Organisation and Economics in their LCE studies has increased over the years since their inception in the syllabus, according to statistical returns. Not totally unrelated to this is that, when Economics was introduced in the United Kingdom in 1951, the subject expanded more rapidly than any other subject at "A" level and more than three

times as fast as the total number of subjects (Harbury and Szreter, 1968).

Studies carried out by Clarke (1989) and Somers (1992) refer to University students. No research can be traced in respect of Business Studies students in Institutes of Technology in Ireland.

The LCE is the entry requirement at the end of second level education for entry to third level. Competition for places at third level is intense and students are preoccupied with subject selection and achievement. It is intended at this juncture to consider the admissions system, admissions machinery for higher education, and legislation governing entry requirements.

Legislation Governing Entry Qualifications

Legislation governing third level educational institutions in Ireland allows the Universities and Institutes of Technology to determine their own admission requirements for entry to their courses of study.

The Universities are governed by the Irish Universities Act (1997). This Act provides for the academic council of the individual university to make recommendations to the governing body on admission requirements for the various courses. Section 14 of the Irish Universities Act (1997) states that each University will:

“have the right and responsibility to preserve and promote the traditional principles of academic freedom in the conduct of its external and internal affairs and be entitled to regulate its affairs in accordance with its independent ethos and traditions and to traditional principles of academic freedom”.

The Act also emphasises that in implementing their freedom in this regard the University shall take into account:

- Promotion of equality and access to opportunities
- Effective and efficient use of the universities resources provided
- Accountability for its obligations.

Section 47 (1) is more specific on matriculation entry requirements to courses. This section emphasises that the National University of Ireland will determine the basic entry requirements for the colleges within the National University of Ireland framework. In addition, the Act specifically empowers each University to lay down additional requirements generally and for particular faculties of the University.

Examples of specific requirements can be seen in respect of particular programmes in UCD and other institutions.

The Regional Technical Colleges Act 1992 governs the Institutes of Technology. Section 5 of the Act sets out that the principal function of the college shall be:

“the provision of vocational and technical education and training for the economic, technological, scientific, commercial industrial, social and cultural development of the state with particular reference to the region served by the college”.

The Act further emphasises that the college will provide such courses of study as the governing body of the college considers appropriate. The Act also states that a college can enter into arrangements with the National Council for Educational Awards (renamed Higher Education and Training Awards Council) and with any University in Ireland approved by the Minister for Education and Science from time to time for the purpose of providing Certificate, Diploma and Degree or other educational awards.

Section 10 of the Act provides that each college shall have an academic council. This council will be appointed by the governing body. The function of the academic council shall be to assist in the planning, co-ordination, development and overseeing of the educational work of the college. In addition, it emphasises the maintenance and development of academic standards of the courses and curriculum in the college. Section 10 (d) specifically states that the academic council will:

“make recommendations to the governing body for the selection, admission, retention and exclusion of students”.

The academic council is also charged with the responsibility of making academic regulations subject to the governing body's approval.

Aims of this Study

Stakeholders in the education system, such as parents, students, teachers and employers, believe that subjects such as Business Studies, Science and Engineering should be a requirement for entry to similar studies in higher education in Ireland. A survey carried out for the Points Commission (1998) claimed that 85% of students

surveyed felt that extra points should be given for subjects relevant to the courses being applied for.

The aims of this investigation are:

- To focus on the relationship between LCE points and subsequent achievement in third level Business Studies
- To consider the relationship, if any, between achievement in the compulsory subjects of Mathematics and English and academic performance in Business Studies
- To consider the relationship, if any, between LCE achievement in Business Studies subjects and academic performance in third level Business Studies.

This paper is presented as follows. The next section focuses on previous research on the predictive ability of the LCE for higher education study in Ireland. The third section will provide a brief explanation of the methodology adopted. The fourth section will present the research findings and the final section concludes.

Summary of Research Literature

A synthesis of the literature cited identifies a number of threads or the absence of them in the findings of research studies. These threads can be summarised as follows:

1. Students who do well in the LCE correlate, but not perfectly, with the performance in third level first year courses. Studies in the UK also show that achievement in advanced level subjects do well in their university examination performance (Moran and Crowley, 1979; The Conference of Heads of Irish Universities, 1996; Bournier and Hamed, 1987; and Sear, 1983).
2. Predictive studies show consistently that the correlations are not perfect. Consequently, some students who do badly in their school examinations do well in their university examinations and students who do well in their school studies sometimes do badly in their university examinations (Moran and Crowley, 1979; The Conference of Heads of Irish Universities, 1996).
3. Students who study Accounting in their LCE perform better in Accounting in first year in at least one Irish university than students who had not attempted the subject in their LCE.

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Research in America and other countries appears to support these findings (Clarke, 1989).

4. Students who study Economics in their LCE do better in Economics in their university examinations than students who did not study Economics in their LCE. British research studies show similar findings (Walsh and Garvey, 1989).
5. Nearly all the studies have been carried out on university students, with only one or two exceptions on non-university institutions (O'Dea, 1984).
6. Although 50% of Irish third level students are in Institutes of Technology, no published research could be found in respect of Business Studies students in these institutions (NCEA, 1999/2000).
7. Selecting the wrong courses leads to waste of time on the part of the student and frustration (Moogan, Barron and Harris, 1999).
8. The points system of entry can be unfair to some students and it does not consider the entire curriculum. Examples of this are involvement in public speaking, sports and athletics, school committees and public relations etc (Humphreys and Jeffers, 1999).
9. LCE subject choices appear to be influenced by higher education institutions' and professional bodies' requirements and the amount of points that can be obtained, rather than the importance of the subject itself (CAO, 2000; NCCA, 1998; ACCA, 1999; CIMA, 1998; ICAI, 1998).
10. The higher education system in the UK differs from the Irish one in that it can offer places on courses on a provisional basis before the applicants attempt their second level examinations, whereas the Irish system offers places only after the results of the second level examinations are available. In addition, the UK system requires three subjects and the Irish system requires a minimum of six subjects from second level results (Points Commission, Final Report, 1999).
11. Students perceive differences between second and third level education, particularly in respect of the shorter third level academic year, supervision of studies at second level not available at third level, living away from home during third level studies, time management during third level studies and

- the new study skills required to study at third level (Cook and Leckey, 1999).
12. To obtain a third level educational qualification is considered to be an important motivating factor to study. Personal commitment of the student can override many students' problems. Personal and family difficulties often have adverse effects for the student (Neumann, 1989; Astin, 1984).
 13. Student involvement in college appears to lead to a greater amount of learning and personal development. This involvement includes living on campus, liaison with academics and fellow students. It is not always what a student brings from second level that matters (Astin, 1984).
 14. The education institution needs to place emphasis on investment in content, resources and flexible learning methodologies (Neumann, 1989).
 15. Certificate, Diploma and Degree courses have different attrition rates. The highest attrition rates are found on the first year of third level courses with significant reductions in years two, three and four (Healy, Carpenter and Lynch, 1999).
 16. Institute of Technology students who dropped out of courses claimed that the course they were offered was not one of their first or second preferences and that they accepted the only course available to them. This mismatch is not an effective use of higher education resources from either the institution's point of view or the students' (Healy, Carpenter and Lynch, 1999).
 17. International studies on student achievement have been unable to find perfect relationships between entry qualifications and achievement. Similar findings are evidenced by Irish studies (Bourner and Hamed, 1987; Peers and Johnston, 1984; Chapman, 1996; Hopkins, Newstead and Dennis, 1997; Moran and Crowley, 1979; The Conference of Heads of Irish Universities, 1996; The Points Commission, 1999).

Summary of Research Methodologies undertaken

Method	Purpose
Questionnaire issued to collect relevant information. Quantitative information on points and exact LCE grades of achievement were sought.	To provide data for preliminary consideration of the investigation. The results would allow data to guide the development of the research study.
Samples of quantitative information were examined, including LCE grades, subject results and end of year Examination reports.	To evaluate the quality of data and how various pieces of data could be matched to provide a complete set of data in respect of each individual student.
Statistical information interpreted in respect of information on points and LCE grades and outcomes.	To provide accurate data in respect of quantitative questions. To improve the validity of the data and to increase the credibility of the findings.
Interview schedule developed to be administered to five students on high points and five students on lower points from a specific course intake.	To provide a picture of the world of the student. To obtain as wide a variety of information as possible.
Data collected from students through Focus Group interviews.	To ensure results would complement each other in facilitating the richness of the findings of the research study.
Interviews with students from the Private College Sector. Research Methods includes Brannick (1997).	To provide information on the experiences of students in the Private College Sector in Ireland.
After carrying out a manual audit trail of the data, Statistical Package for the Social Sciences (SPSS) was used. (July/September Year 1) (July/September Year 2) (July/September Year 3) (July/September Year 4)	To provide accurate calculations and construct the necessary tabulations and figures for the study. The procedures for entering and exploring data were adhered to. The mean and standard deviations were calculated and tabulated. Statistical correlations or associations were calculated. The Pearson correlation which is a measure of a supposed linear relationship between two variables was calculated using SPSS. The package was also used to generate the data set out in the findings.

Research Findings

The present section attempts to compare second level academic achievement with the students' third level academic achievement. This research attempted to address the aims and research questions detailed in the introduction. Descriptive statistics of over 200 students who registered for the NCBS with add-on NDBS and add-on Degree of BBS in the 1990s will be provided. Each individual student was tracked through the four years of the course.

Entry Points and Third Level Achievement

Table 1 shows that, with the exception of year two, where achievement scores for the bottom and middle points ranges is almost the same, scores increased with the higher points range. **Table 1** demonstrates that 185 students attempted first year examinations and 19 had dropped out of the course before reaching first year examinations date. Sixty-seven (36%) were in the points range 330 to 345, 59 (32%) had 350 to 370 points and 59 (32%) had 375 to 460 points. Of the 19 students who dropped out early, 8 (42%) were in the low points range, 7 (37%) were in the middle points range and 4 (21%) were in the high points range. Therefore, students who register and drop out very early before attempting the first year examinations are twice as high in the lower points range than in the higher points range in respect of this specific intake of students in Business Studies. The drop out rate of students who attempted first year decreased with the higher points ranges. In the points range 330 to 345, 50 (75%) of students did not reach year four. In the points range 350 to 370, the corresponding figure was 39 (66%), while in the highest points range 375 to 460, the drop out amounted to 25 (42%).

Of the students who attempted first year and progressed to second year, 48 (72%) of the 330 to 345 points range attempted their examinations while in the 375 to 460 points range, 51 (86%) attempted their second year examinations. Twenty-three (34%) of first years in the range 330 to 345 sat their third year examinations, while 39 (66%) in the range 375 to 460 points attempted their third year. In the final year, 17 (25%) of students in the lowest points range who attempted their first year examinations completed their BBS degree, while 34 (58%) of students in the higher points range of 375 to 460 had similar success.

It appears from the above statistics that students in the higher points range performed academically better than their counterparts in the lower points range. Consequently, the distribution of points and

academic achievement demonstrates that students with higher points have a better chance of completing their four years to achieve the BBS course. It is also noticeable that the overall mean average scores increased from 47.77% in first year lower points range to 55.34% in the highest points range.

TABLE 1: DISTRIBUTION OF STUDENTS' AVERAGE ACHIEVEMENT (X, STD) AND POINTS RANGES

Year	330 to 345 Points		350 to 370 Points		375 to 460 Points		Total	
	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)
1	67	47.8 (8.7)	59	52.3 (8.1)	59	55.3 (11.0)	185	51.6 (9.7)
2	48	55.8 (9.8)	52	55.5 (9.0)	51	61.3 (8.5)	151	57.6 (9.5)
3	23	58.4 (5.7)	31	59.8 (6.9)	39	65.7 (7.3)	93	61.9 (7.5)
4	17	57.8 (7.1)	20	61.0 (7.2)	34	66.4 (6.1)	71	62.8 (7.5)
Did not sit First Year Exams	8		7		4		19	

Mandatory Subjects

The subjects of Mathematics and English or Irish are mandatory requirements for entry to the NCBS. Achievement can be at Ordinary or Higher Level. Research on success rates in three of the Institute of Technology found:

“Students with low points ratings in the Leaving Certificate particularly in Mathematics, were most at risk of non-completion” (Healy, Carpenter and Lynch 1999, page 4).

The Points Commission (1999) felt that entry qualifications are a reasonable, but far from perfect, indicator of performance in higher education in Ireland.

This section of the study attempts to find how important the mandatory subjects of Mathematics and English are in relation to

their subsequent academic performance in the Business Studies discipline specifically.

Table 2 shows that students with higher Mathematics achieve higher scores in each points range in first year Business Studies. In all other years, sometimes marginal Higher Level Mathematics students perform better than their counterparts with Ordinary Level Mathematics, with the exception of the 330 to 345 points range for years 2, 3 and 4 and the 350 to 370 points range for year 4. The drop out rate also differs between the three points ranges. Students with higher Mathematics in the 330 to 345 points range had a retention rate of 1 (14.28%), while in the 375 to 460 points range the retention rate was 9 (75%). At Ordinary level, the retention rate for the 330 to 345 points range was 16 (29.62%), while in the 375 to 460 points range the figure was 20(48.78%).

TABLE 2: DISTRIBUTION OF STUDENTS WITH HIGHER AND ORDINARY LEVEL MATHEMATICS, THEIR POINTS RANGES AND OVERALL AVERAGE ACADEMIC PERFORMANCE IN YEARS 1 TO 4 (X, STD)

Year	330 to 345 Points				350 to 370 Points				375 to 460 Points			
	Higher		Ordinary		Higher		Ordinary		Higher		Ordinary	
	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)
1	7	51 (7.7)	54	47 (11.2)	9	55 (5.6)	53	51 (8.6)	12	61 (6.1)	41	57 (9.2)
2	5	51 (14.3)	37	54 (9.4)	9	56 (9.6)	44	56 (9.0)	12	66 (6.8)	38	62 (8.8)
3	2	53 (10.9)	17	60 (4.8)	5	59 (8.2)	28	60 (6.6)	9	66 (5.7)	29	66 (7.4)
4	1	58 (0.0)	16	60 (8.0)	3	57 (5.2)	16	61 (6.4)	9	68 (6.0)	20	66 (6.3)

Table 3 shows that students with Ordinary Level English achieve better mean scores than their counterparts with higher level English in first year Business Studies. This difference increases as the points range increases. In years two, three and four, the differences are mixed and sometimes marginal. However, the high points range of 375 to 460 points in year four shows a difference of seven points in favour of students with Ordinary level English.

The drop out rate for students of higher level English in the lower points range of 330 to 345 was 31 (77.5%), while in the high points range of 375 to 460 the comparable figure was 21 (47.72%). In Ordinary level English, the drop out rate for the lower points range of 330 to 345 was 10 (58.82%), while the figure for the higher points range of 375 to 460 was 1 (20%).

TABLE 3: DISTRIBUTION OF STUDENTS WITH HIGHER AND ORDINARY LEVEL ENGLISH IN THEIR LEAVING CERTIFICATE, POINTS RANGES AND AVERAGE ACADEMIC ACHIEVEMENT IN THIRD LEVEL BUSINESS STUDIES (X, STD)

Year	330 to 345 Points				350 to 370 Points				375 to 460 Points			
	Higher		Ordinary		Higher		Ordinary		Higher		Ordinary	
	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)
1	40	48 (7.7)	17	50 (8.5)	36	51 (8.4)	8	57 (6.1)	44	54 (10.5)	5	64 (10.4)
2	30	58 (10.5)	14	55 (10.5)	31	54 (8.3)	8	60 (8.7)	38	61 (8.8)	5	59 (10.8)
3	15	54 (14.8)	7	62 (5.7)	17	58 (6.4)	5	64 (6.0)	28	78 (5.2)	4	73 (5.2)
4	9	60 (7.1)	7	57 (8.8)	9	56 (6.0)	4	64 (4.1)	23	63 (14.4)	4	70 (9.7)

Business Studies subjects in LCE

The three main stream business subjects in the LCE are Accounting, Business Organisation (renamed Business) and Economics. Accounting, Economics and Business Mathematics are compulsory in most third level first year business courses. Students who have decided at entry to senior cycle that they intend making Business Studies their career may select one or more of the Business Studies subjects listed above. However, due to particular constraints, they may not be able to select a particular Business Studies subject. These constraints include timetable clashes with other subjects, limit of class sizes in the school or lack of provision of a specific subject in the school curriculum. Students who have not decided on a Business Studies career at the beginning of their LCE studies may decide later when they have completed their senior cycle. Of the 200-plus students in this study, only 18 of them had not attempted a Business Studies subject in their LCE before entry to the course.

This section of the study attempts to find how important Business Studies subjects in the LCE are when studying Business Studies at third level.

Table 4 shows that students who attempted accounting in their LCE achieved higher overall performance in first year than their counterparts who had not attempted the subject. This trend is less clear after first year. The retention rate of students completing the four years of the course increases with the increase in points ranges. Twenty-five percent of students in the 330 to 345 points range with accounting completed the four years, while 60% of students with accounting in the 375 to 460 points range completed the degree. Twenty-six percent of students in the 330 to 345 points range without having studied accounting in their Leaving Certificate completed the four years, while 56% of the counterparts with 375 to 460 points who had not studied the subject in their Leaving Certificate achieved their Bachelors Degree.

Table 5 shows that students who had attempted Business Organisation in their LCE performed marginally less well in their overall performance in first year than their counterparts who had not attempted the subject across the three points ranges. Students with the subject do not appear to have any apparent advantage over students who had not studied the subject in years two, three and four. Students with the subject in the 330 to 345 points range had a 22% retention, while students in the 375 to 460 points range had a retention rate of 58%. Students without the subject in their Leaving Certificate had a retention rate of 29% in the 330 to 345 points range, while students in the higher points range of 375 to 460 had a retention rate of 57%.

Table 6 shows differences between students with economics in their Leaving Certificate and students without. In year four, students without the subject performed academically better in all points ranges than their counterparts with it. Twenty-three percent of students in the 330 to 345 points range with the subject completed the four years of the course, while the percentage increased to 36% for students in the 375 to 460 points range. The comparable figure for students without the subject in the 375 to 460 points range was 63%.

TABLE 4: DISTRIBUTION OF STUDENTS, THEIR POINTS RANGES, WITH AND WITHOUT ACCOUNTING IN THEIR LEAVING CERTIFICATE AND THEIR THIRD LEVEL AVERAGE ACADEMIC PERFORMANCE (X, STD)

Year	330 to 345 Points				350 to 370 Points				375 to 460 Points			
	With Accounting		Without Accounting		With Accounting		Without Accounting		With Accounting		Without Accounting	
	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)
Year 1	32	51 (8.0)	35	45 (8.2)	25	55 (7.4)	33	50 (8.0)	25	59 (8.6)	34	54 (12.8)
Year 2	24	57 (10.0)	24	55 (9.8)	24	55 (9.4)	27	55 (8.6)	21	61 (7.8)	29	61 (9.2)
Year 3A	6	56 (6.5)	0	0 (0.0)	8	59 (7.8)	3	54 (5.4)	11	66 (9.6)	2	72 (10.6)
Year 3M	7	56 (3.5)	11	62 (4.9)	5	61 (6.5)	14	60 (7.2)	6	66 (8.3)	20	65 (5.8)
Year 4	8	57 (6.3)	9	59 (8.2)	9	61 (7.3)	13	61 (6.4)	15	68 (5.6)	19	65 (6.5)

TABLE 5: DISTRIBUTION OF STUDENTS, THEIR POINTS RANGES, WITH AND WITHOUT BUSINESS ORGANISATION IN THEIR LEAVING CERTIFICATE AND THEIR THIRD LEVEL AVERAGE ACADEMIC PERFORMANCE (X, STD)

Year	330 to 345 Points				350 to 370 Points				375 to 460 Points			
	With Bus. Org.		Without Bus. Org.		With Bus. Org.		Without Bus. Org.		With Bus. Org.		With Bus. Org.	
	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)
Year 1	36	46 (8.0)	31	50 (8.7)	38	52	20	53 (7.6)	38	55 (11.8)	21	57 (10.9)
Year 2	26	54 (9.0)	22	58 (10.7)	34	57	17	52 (10.7)	31	61 (8.9)	19	62 (8.3)
Year 3A	0	0 (0.0)	6	56 (6.5)	8	60	3	53 (7.0)	8	69 (6.8)	5	63 (12.8)
Year 3M	10	62 (5.0)	8	57 (5.0)	14	61	5	59 (7.9)	17	63 (5.9)	9	69 (5.8)
Year 4	8	59 (9.0)	9	58 (6.2)	15	61	7	62 (4.6)	22	65 (6.3)	12	67 (6.1)

TABLE 6: DISTRIBUTION OF STUDENTS, THEIR POINTS RANGES, WITH AND WITHOUT ECONOMICS IN THEIR LEAVING CERTIFICATE AND THEIR THIRD LEVEL AVERAGE ACADEMIC PERFORMANCE (X, STD)

Year	330 to 345 Points				350 to 370 Points				375 to 460 Points			
	With Economics		Without Economics		With Economics		Without Economics		With Economics		Without Economics	
	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)	N.	X (Std)
Year 1	13	47 (9.6)	54	48 (8.3)	9	53 (8.0)	49	52 (8.2)	11	52 (9.0)	48	56 (11.9)
Year 2	7	60 (5.1)	41	55 (10.3)	7	56 (7.4)	44	55 (9.2)	9	56 (10.4)	41	62 (7.8)
Year 3A	1	59 (0.0)	5	55 (7.0)	1	60 (0.0)	10	58 (7.7)	0	00 (0.0)	13	67 (9.6)
Year 3M	5	57 (6.6)	13	61 (4.6)	4	60 (8.3)	15	61 (6.8)	5	64 (6.0)	21	65 (6.6)
Year 4	3	59 (11.0)	14	61 (6.7)	3	60 (3.5)	19	62 (7.1)	4	61 (4.8)	30	67 (6.1)

Conclusion

This investigation saw a gap in the research literature as virtually no research had been undertaken on Business Studies students in Ireland. This study hopes to remedy some of this deficiency. The present section summarises the principal findings of the research.

Previous research studies relating entry qualifications with third level performance reveal three critical weaknesses when comparing their findings with this study:

- Dependence of the studies on the university section
- Lack of research on Business Studies students
- Studies aggregating disciplines in higher education.

The study began by setting out a number of research aims in respect of Business Studies students which it attempted to investigate. The conclusions will be presented under three principal headings. Firstly, the question of entry points and achievement will be addressed. Secondly, the importance (if any) of the mandatory subjects of Mathematics and English for third level Business Studies students will be presented. Thirdly, the benefits (if any) of studying one or more of the LCE Business Studies subjects Accounting, Business Organisation or Economics will be presented.

Entry Points

The study found that there was a positive, but not perfect, correlation between an individual's overall academic performance at the LCE and performance in Business Studies (**Table 1**). The predictive validity of the LCE is reasonably high. Students in the middle and high points ranges achieved better scores overall in Business Studies than students in the low points range.

The results of this study echoes the findings of the Conference of Heads of Irish Universities (1996). The Points Commission (1998) and Moran and Crowley (1979) found a positive, but not perfect, relationship between entry points earned from the LCE and academic performance in third level education. Unlike these studies, which relied upon quantitative data across a variety of disciplines, the current study found quantitative data and confined itself to Business Studies.

A characteristic of the system of third-level Business Studies selection in Ireland, unlike other countries such as the USA and the UK, is that applicants for a place on a Business Studies course are not

asked to demonstrate a specific interest in, or knowledge or understanding of, the course or courses for which they are applying. As a consequence, supply and demand for places determines the required entry points level for Business Studies courses in Institutes of Technology and Universities. High points may be generated by extremely limited numbers of places (Points Commission, 1999). The stakeholders in Irish Education are supportive of the points system because of its transparency, impartiality and efficiency.

With regard to the retention rate of students completing the four years leading to the BBS Degree, it was found that students in the higher points range had higher retention rates than students in the lower points range.

Essential subject requirements for entry to the course

Mathematics and English or Irish are essential subject requirements for entry to the Business Studies course. Students who dropped out early in the course and did not attempt first year examinations had ordinary level Mathematics, with only one exception who had a higher D.

Students who completed first year who had achieved higher level Mathematics performed better overall than students with lower level Mathematics in upper merit and distinction categories. In second year, this trend was reversed in respect of students in lower points range, whereby students with ordinary level Mathematics performed better (**Table 2**). Three-quarters of the students with higher level Mathematics elected to study Accounting in second year, whereas the comparable figure for students with Ordinary Level Mathematics was only slightly over one-quarter.

Students with Higher Mathematics in the middle to higher points ranges had a higher retention rate than students with Ordinary Level Mathematics. There was a positive correlation ($r=530$) between LCE Mathematics achievement and achievement in Mathematics and Statistics in first year. The results of this study reflects previous research by McGrath (1996), and Healy, Carpenter and Lynch (1999). Students with Ordinary Level English achieved higher mean scores in their first year examination overall results than their counterparts with Higher Level English. This difference increased as the points range increased. The drop out rate is higher among students with higher level English.

Benefits (if any) of studying Business Studies subjects in the Leaving Certificate

Students who attempted Accounting in their LCE achieved higher overall performance in first year than students who had not attempted the subject. This trend did not continue after first year. The different retention rates between students who had LCE Accounting and who had not attempted the subject in their LCE were only marginal.

Regarding the sample, the mean was significantly higher in the subject Accounting for those who attempted Accounting in their LCE than those who had not attempted the subject. On average, students scored 17.91 points more in their academic performance in Accounting than those without the subject in their LCE. The 95% confidence interval for the mean difference was from 13.97 to 21.86.

A comparison is made between students who attempted Economics in their LCE and students who did not in relation to their academic performance in Economics in first year Business Studies. Regarding the sample, the mean was significantly higher for those who attempted Economics in their LCE than those who had not attempted the subject. On average, students scored 5.21 points more in their academic performance in Economics than those without the subject in their LCE. The 95% confidence interval for the mean difference was from .72 to 9.69. There are differences in overall performance of students who attempted Economics in their LCE compared to students who had not attempted the subject.

Students who had attempted Business Organisation in their LCE do not appear to have an apparent advantage over students who had not attempted the subject.

The correlations between Business Studies subjects in LCE and overall performance in years one to four in third level are not high. The study also revealed that the study of Business Organisation was providing basic knowledge and was not very important when it came to studying in third level Business Studies.

It appears that good grades in Mathematics and/or Physics can compensate for lack of Accounting in the LCE. Previous studies by the Points Commission (1999), and the Association of Secondary Teachers in Ireland (1998) suggest that bonus points should be given for subjects relevant to third level education course choice. The findings of this study would share these views for the subject of LCE Accounting but not for the subjects of Business Organisation or Economics. Finally, a synthesis of successful Business Studies students

reveals the importance of higher entry points from LCE, Higher Level Mathematics LCE, and Accounting LCE.

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