Off the radar

The problem of distance-learning in 'integrated' degrees

Monir Zaman Mir and Abu Shiraz Rahaman

Just about everyone suspects that the rush to enrol distance-learning students in on-campus degrees tends to disadvantage them. Monir Mir and Abu Shiraz Rahaman set out to test this intuition, using accounting students as their guinea-pigs.

Introduction and background

The recent higher education reforms have seen many Australian universities actively repositioning themselves to achieve greater competitiveness in terms of attracting good quality students and government funding. The immediate result has been the widespread recognition of the distance education mode as a way of attracting good quality students who will otherwise not be able to attend formal lectures for a variety of reasons. Many Australian universities have therefore adopted an 'integrated' model for delivering their programs and courses.[1] Under the integrated model, external (distance/off campus) and internal (on campus) teaching are integrated (i.e. courses are offered both on-campus and externally). The model requires not only the same course material to be covered but also the same assessment methods utilised to determine students' academic performance. However, internal students get more contact and interactivity with their instructors compared to their external colleagues.

Australian universities that have adopted the integrated system have developed a unique staffing structure that preserves much of the on-campus provision for students as well as meeting specific needs of external students (Keegan and Rumble, 1982, p.18; Keegan, 1986, p.156). The academic staff members of these universities are responsible for the 'total teaching/learning process', including writing course materials, and teaching through a combination of independent study for external students and face-to-face instruction for internal students. Figure 1 *(p. 42)* shows how the integrated system works in these Australian universities.

Distance education under the integrated system should not be confused with the 'open learning' system. While there is no acceptable definition of open learning, some features of this mode of education noted in the literature include the following (Webberley and Haffenden, 1987, p. 138):

1. Study whenever it is convenient, whether at home or at work.
2. Enrol at any time without worrying about previous qualifications.
3. Study at a pace which suits the learner.
4. Leave the system in a manner which suits the learner.
5. Have access at his/her own discretion to instructor support and guidance.

While open learning deals with students who study entirely through the distance education mode, the distinctive feature of the integrated system is that the external and internal teaching is combined. For some courses 'Residential Schools' are organised for external students to experience some interactivity with their instructors, albeit, only for a short period of time (usually the entire course material is covered in two or three

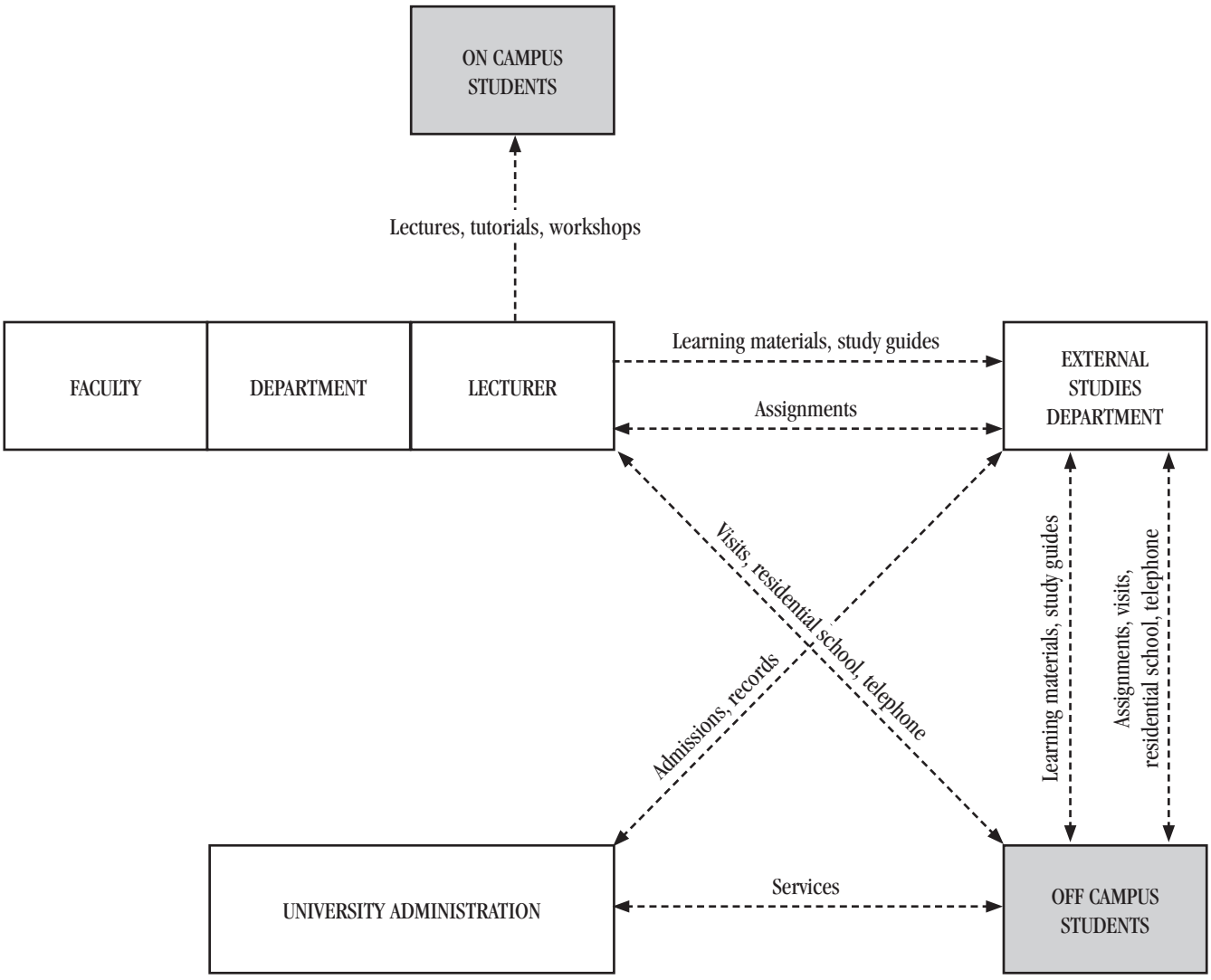


Figure 1: The Australian Integrated Mode

(Source: Keegan, 1986, p. 157, slightly modified)

days).[2] The Residential Schools take the form of lectures and tutorials or workshops led by the instructor with the view of bridging the gap between the two groups of students in terms of interactivity with the instructor.

The initial arguments for the Residential Schools derived from the education literature which argues that the quality of a teacher's explanations in the classroom (or face-to-face) teaching would influence both the students' interest and their ability to develop accurate concepts (see for example Entwistle, 1987). Entwistle argues that part of a teacher's skill involves recognising (from facial expressions) when a student does not understand a particular concept or procedure and then provide an alternative explanation. This implies that internal students generally have an advantage over external students whose facial expressions are difficult or impossible to observe. Similarly, Brown and Atkins (1988, p. 10) argued that a student's response to a lecture is not only a set of intelligent notes which may be understood, it also consists of reactions to the lecture and lecturer.

The immediate reactions are usually non-verbal signals and these may be received, interpreted, and perhaps acted upon by the lecturer. A study conducted on the experience of the external students of the University of Southern Queensland, Australia, revealed that learning packages prepared for the external students are not equivalent to or a replacement for lectures (NBEET, 1992, p. 15). From these observations it could be argued that internal students should be expected to perform academically better than the distance students.

The advantage of internal students over external students becomes more pronounced when a subject involves a large amount of quantitative problem-solving activities. Moncada and Sanders (1998, p. 53) in their study on the available academic support system for accounting students found that all forms of direct contact with instructors were perceived as the most beneficial type of help available. Teachers can explain different ways of solving a quantitative problem in a lecture and thereby help students who are facing difficulties. On the other hand, a 'study guide' prepared for external students will not include different ways of solving a quantitative problem. In addition to the advantage of additional contact hours, internal students have access to the study materials prepared and designed for external students in an 'integrated' distance education system. Therefore, it is also expected that, generally, the internal undergraduate accounting students should outperform external students in terms of their grade achievement. Our objective in this paper is to investigate whether the grades of internal undergraduate accounting students under the integrated system are higher than their external counterparts.

Our study is motivated by the paucity of studies which have investigated the difference in academic performance of the two distinct groups studying under the integrated system. A literature search (covering the last five years) revealed only two relevant research papers in this area. Waldmann and De Lange (1996) investigated the difference of academic performance of distance, open learning and on-campus undergraduate accounting students at Monash University. Based on the grades of a first-year financial accounting subject, they observed that on-campus students obtained higher examination scores than those obtained by the open learning and distance education students. In a later study De Lange *et al.* (1997) found that there was no significant difference between a student's prior education level and results achieved in open learning. This study aims to extend the existing research through investigating the performance implications of the physical separation of accounting undergraduate students under the Australian integrated system. The impetus for the present study came about when the researchers were involved in teaching internal and external students under the integrated system in an Australian university.

Theoretical issues and the formulation of hypotheses

While attempting to provide a theoretical framework for distance education, researchers mainly have viewed the teaching methods from two perspectives, i.e., the distance mode of education and the campus-based system.[3] These prior studies have generally examined institutions which are solely involved in providing programs under the distance education mode. Given the distinctive features of the integrated system, we argue that such studies may not fully reflect this unique and novel learning environment. The theoretical resource, that guides our way of seeing in this paper, therefore draws heavily on the prior literature and attempts to extend such discussions as they relate to the integrated system.

In particular, we start with the equivalence theory of distance education in Simonson *et al.* (1999, p. 70) which, arguably, has major implications for the integrated system of distance education. The central argument of equivalency theory is that education at a distance should be built on the concept of equivalency of learning experiences of internal and external students. Drawing on this theoretical position,

Table I: Distinguishable Features of Face-to-face and Distance Teaching

FACE-TO-FACE EDUCATION	DISTANCE EDUCATION
Immediate, personal contact between learner and teacher	Contact through communications media
Teacher can readily adapt to learner's immediate behaviour	Adaptation delayed
Learner's environment is primarily designed to support learning activities	Learner's environment is designed to serve other purposes (distractors)
Metacommunication between teacher and learner is possible	Metacommunication is difficult
Personal relationships can moderate learning	Personal relationship is of little importance
Direct control of learner by teacher is possible	Teacher's influence is indirect
Learning materials can be of low didactic standard	Learning materials must be of high didactic standard (well organised, clear, etc.)
Learners experience limited degree of freedom	Learners experience a high degree of freedom
Wide opportunities exist for imitation/identification learning	Few opportunities exist for imitation/identification learning
Communication need not be planned to last detail	Communication is usually highly planned
Information is provided by a mixture of cues (personal, content-related, organisation-related)	Information is mainly provided by content and organisation
A high degree of evaluation and feedback from the teacher is possible	A comparatively low degree of evaluation and feed-back from the teacher is possible
Internal motivation, self-direction, self-evaluation, planning, etc. can be low	Internal motivation, self-direction, self-evaluation, planning ability, etc. must be high
Willingness and ability of learner to work without direct supervision may be low	Willingness and ability of learner to work without direct supervision must be high.

(Source: Keegan, 1986, p. 124)

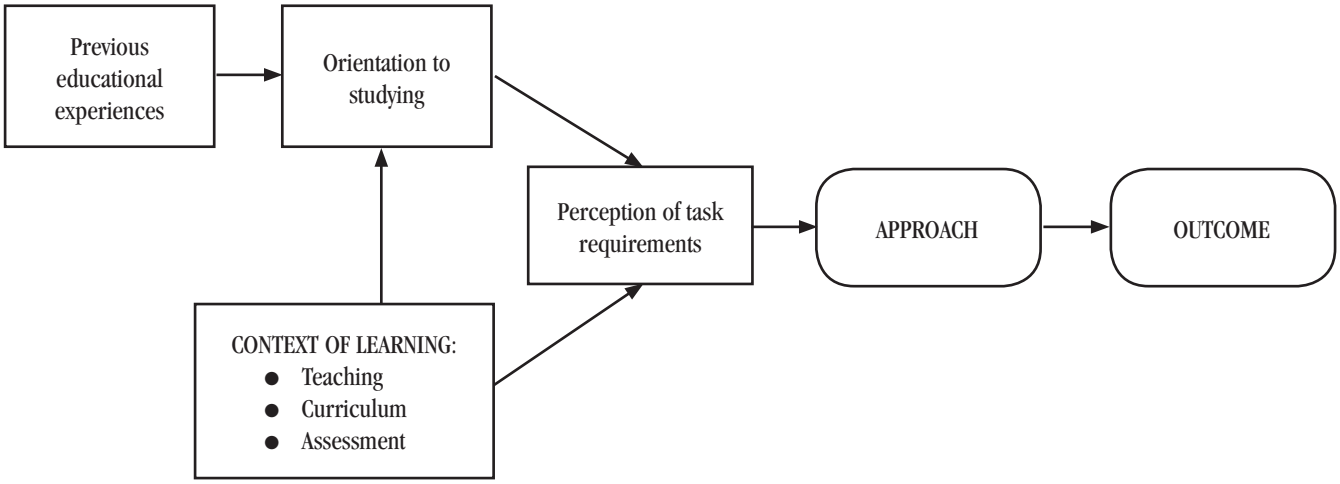


Figure 2: Student Learning Context

(Source: Ramsden, 1992, p.83)

we contend that whether universities are successful in their attempt to provide equal learning experience for both internal and external students under the integrated system of distance education is quite debatable. In an earlier work, Keegan (1981, p. 116-119) argued that most organised formal education is carried out in classroom or lecture halls with an individualised teacher in person imparting knowledge and skills to a group of students. Whereas, an essential feature of distance education is that the teaching acts are separated in time and space from the learning acts of the students. Drawing on a German study, Keegan (1981, p. 124) provided a list of distinctions between face-to-face (campus-based) teaching and distance teaching *(see Table I, p. 43).*

The table identifies many features of face-to-face education that may facilitate enhanced academic performance and learning outcomes of internal students over their external counterparts. Therefore, we argue that the proposed equivalency theory may not fully elucidate distance education under an integrated system.

Students' academic performance and learning outcome also depend on the students' learning approach that in turn is significantly influenced by the teaching modes and methods. Ramsden (1992, p.83) distinguishes between two main approaches to student learning: the 'deep approach' and the 'surface approach' *(see Figure 2)*. The main difference between these two approaches is that students who adopt the deep approach to learning seek to gain a clear understanding of the task, concept, or procedure while those that adopt the surface approach only seek to complete the task requirements. Ramsden (1992, p. 53) argued that deep approaches are related to higher quality outcomes such as better grade performance. Other variables that impact on a student's learning and performance include the task requirement, orientation to study and the context of learning (i.e. teaching modes, curriculum and assessment).

The key question is whether internal and external students under the integrated system are differentiable in terms of the above-mentioned aspects or variables of learning outcome. For example, historically, distance education (external studies) was meant for mature age part-time students who were also working. Therefore, the expectation has been that external and internal students diverged in terms of their respective educational experience and orientation to studies. However, increased accessibility and availability of distance education in recent times have contributed to diminish the differential characteristics of internal and external students. The methods of distance education and the methods of mainstream education are converging or becoming less distinguishable (Kelly and Smith, 1987, p.2). For example, many fresh high school leavers now opt for distance-based education although they may not be working full-time.

We observe the current scantiness of studies on learning approaches and outcome in the accounting and finance literatures. A review of the recent (during the last five years) literature revealed three studies in this area. Gow *et al.* (1994) in their study of students of Hong Kong Polytechnic found that students' deep approach to learning declined between the start of year one and year two but gradually rose in year three. Sharma (1997) investigated accounting students' learning conceptions and approaches to learning and concluded that students' perceptions of the learning context influence their learning approaches. Similarly, Booth *et al.* (1999) observed relatively higher surface and lower deep learning approaches among accounting students.

According to Ramsden's (1992) model, 'teaching' is one of the contextual variables that affect students' learning approaches. Ramsden (1988) argued that good teaching methods including good rapport with students encourage a deep approach to learning. Therefore, as internal students are provided with interactive teaching in terms of student teacher communication and interactions (see Table 1) compared to the external students, they are expected to adopt a deep approach to learning and achieve higher performance (Ramsden, 1992, p. 57). In the accounting literature, Booth *et al.* (1999) also observed an association between a surface approach to learning and less successful academic performance.

The theoretical issues raised in this section are summarised as follows:

- The increased accessibility and availability of distance education in recent times have contributed to diminish the differential characteristics of internal and external students. Especially, student profiles of both the internal and external students are similar under an integrated distance education system.
- As the student profiles under the integrated system are converging, there is little difference of learning approach (i.e. deep and surface approach) adopted by the internal and external students. That is, the proportion of students adopting deep approach and surface approach will be similar between internal and external students.
- The difference which still exists is the physical separation of the students from the teacher which affects communication and interactivity between students and teachers. Internal students have advantages over external students in this regard.

In translating these theoretical issues into testable forms, the null hypotheses are provided as follows:

> H1: Face-to-face teaching supports have no significant impact on the academic performance of internal and external undergraduate accounting students in their financial accounting subjects i.e. teaching mode and academic performance are independent.

> H2: Face-to-face teaching has no impact on the academic performance of internal and external undergraduate accounting students in their financial accounting subjects as they proceed from basic level to higher level subjects.

Data collection and research method

To test these hypotheses, data was collected from six Australian universities who offer the integrated mode of teaching for undergraduate financial accounting subjects. The primary data source was grade summary of one financial accounting subject of three different levels i.e., first year – 100 level, second year - 200 level and third year – 300 level subjects. The grade information of these three different levels was collected for three different years for each level. For example, grade information for the 100 level subject was collected for the year 2000; for 200 level subjects for the year 2001 and for the 300 level subjects for the year 2002. It is expected that those accounting students who were doing their 100 level financial accounting subjects in 2000, were also most likely doing 300 level accounting subjects in 2002. This would facilitate the comparison of performance across the years of the same cohort of students. In terms of the demographics of the two sub-groups, while external students included some more experienced matured-age full-time employees, the large majority of internal students were High School leavers with almost no previous work experience.

However, we also noted from our interviews that some external students were recent High School graduates who opted to pursue their degrees externally in order to avoid relocating to University towns. Similarly, there are also some mature age students that have opted to study full-time internally so the demographics are unlikely to play a significant role in explaining the differences between the two groups. This changing demographic trend is elaborated by Jevon (1987, p. 22) when he observed that:

> …it is no longer generally accepted that distance education is not for school leavers. Differentiation by age group shows signs of breaking down, and this boundary line, which once seemed to separate distance education quite sharply from campus-based education is becoming hazy…

In all the four universities that provided data for this study, the entry requirements were identical for both groups, including the general English Language and Mathematics requirements that applies to all Australian universities.[4] There were no special mathematics requirements for accounting students versus students in other disciplinary areas or internal versus external students.

In order to identify the universities for the grade information, the Australian Good Universities Guide was consulted. Six universities were identified from the list of 38 Australian universities on the basis of their integrated mode of teaching of financial accounting subjects. Letters were sent to six Heads of the accounting department/school explaining the purpose of our research and requesting grade summaries to enable us to achieve these objectives. Assurance was given concerning anonymity of the universities providing data for this research. All the Heads of Accounting disciplines of these six universities provided the researchers the required information. However, two of these responses were partly complete, as they do not offer 200 and 300 level accounting subjects in a distance mode. Therefore, only grades of the four Universities who have supplied the complete information were analysed. To ensure anonymity, we avoided using specific university names in our data analysis (the universities are assigned numbers (e.g., Uni 1, Uni 2, Uni 3 and Uni 4, for data identification purpose). In all

the four universities, assessment methods were identical for both internal and external students. Indeed, a single course outline is prepared for each course with the same assignment and exam requirements for both internal and external students in all these universities (see also National Board of Employment Education and Training, 1994, p. 104).

Our final source of data for this research involved interviews with students who have experienced both modes of instructions. We identified a number of students who have switched from internal to external and vice versa at one of the universities studied. These interviews ranged from fifteen minutes to one hour in length and were transcribed verbatim to aid our analysis.

Results

To test our hypotheses we started with chi-square tests to determine whether there are any significant differences between the academic performance of internal and external students. We note that a significant chi-square does not indicate the nature of the difference between the observed and expected frequencies. In other words it does not indicate which group of students is performing better. We therefore, developed charts from the data to achieve this latter objective.

Hypothesis 1 Test Results

Table II *(below)* provides a summary of grades obtained by internal and external students of all four universities in all their 100, 200 and 300 level subjects combined.

While a visual inspection suggests some similarities in grade performance between the two groups, a chi-square test revealed a statistically significant difference between the two groups at, χ^2 (4, N = 3007) = 30.852, $\rho < .05$, using alpha level of .01. The result suggests a rejection of the null hypothesis H1. Figure 3 *(above)* provides a graphical presentation of the grade performance (in percentages) of the two groups over the three-year period.

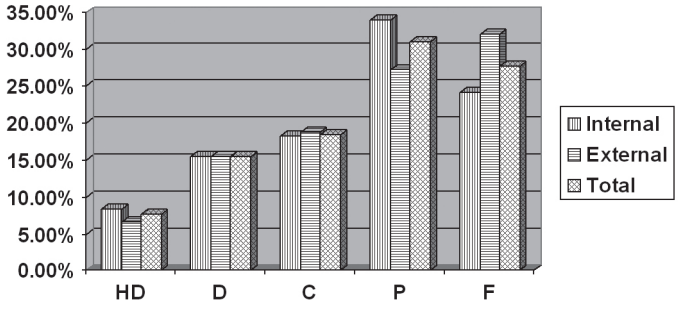
Table II: Summary of Grades

Universities: Uni 1, Uni2, Uni 3 and Uni 4 combined
Level: All 100, 200 and 300 level combined. Year: All 3 years combined

GRADES	INTERNAL		EXTERNAL		TOTAL	
	No	%	*No*	%	*No*	%
High Distinction	141	8.4	89	6.7	230	7.6
Distinction	25	15.4	207	15.5	464	15.4
Credit	303	18.2	250	18.7	553	18.4
Pass	566	33.9	364	27.2	930	30.9
Fail	402	24.1	428	32.0	830	27.6
TOTAL	1699		1338		3007	

Figure 3: Summary of Grades

Universities: Uni 1, Uni2, Uni 3 & Uni 4 combined
Level: All 100, 200 & 300 level combined. Year: All 3 yr combined



It is evident from the chart that external students have a lower pass rate or higher failure rate than their internal counterparts. Therefore, we argue that face-to-face teaching supports do have significant impact on the academic performance of internal and external accounting undergraduate students in their financial accounting subjects.

Hypothesis 2 Test Results

Tables III, IV, V provide the combined summary of grades for financial accounting courses at each of the three different levels (i.e. introductory, intermediate and advanced). Table III provides grade summary for 100 level subjects, Table IV for 200 level subjects and Table V for 300 level subjects of all four universities. At the introductory level students are introduced to the double-entry principles with particular attention given to the recording and summarising financial transactions in a business environment. Most of these universities emphasize financial statement preparation including computations of cost of goods sold and derivation of operating income and an introduction to cash flow statements.

Topics covered at the intermediate level include accounting for assets, liabilities expenses, and owner's equity centring mainly on issues of recognition and Generally Accepted Accounting Principles' (GAAP) requirements. Advanced level courses in all the four universities focused on accounting for foreign currency transactions and translations, accounting for investments, and consolidations of financial statements among others. At all three levels, highly quantitative skills and procedures are involved with some exposure to theoretical foundations of accounting practice provided at the advanced level.

A chi-square test was performed on the relationship between internal and external teaching modes and grades at 100 *(see Table III, p. 48)* level subjects and found to be statistically insignificant, χ^2 (4, N = 1355) = 6.537, $\rho < .01$, using alpha level of .05.

Table III: Summary of Grades
Universities: Uni 1, Uni2, Uni 3 and Uni 4 combined
Level: 100 level Introductory Accounting Subject
Year: 2000

GRADES	INTERNAL		EXTERNAL		TOTAL	
	No	%	*No*	%	*No*	%
High Distinction	104	12.8	62	11.4	166	12.2
Distinction	147	18.1	106	19.4	253	18.7
Credit	158	19.5	111	20.4	269	19.9
Pass	200	24.7	108	19.8	308	22.7
Fail	201	24.8	158	30.0	359	26.5
TOTAL	810		545		1355	

Figure 4 *(below)* provides a graphical presentation of the grade performance (in percentages) of the two groups over the three-year period.

Figure 4: Summary of Grades
Universities: Uni 1, Uni2, Uni 3 and Uni 4 combined
Level: 100 level Introductory Accounting Subject
Year: 2000

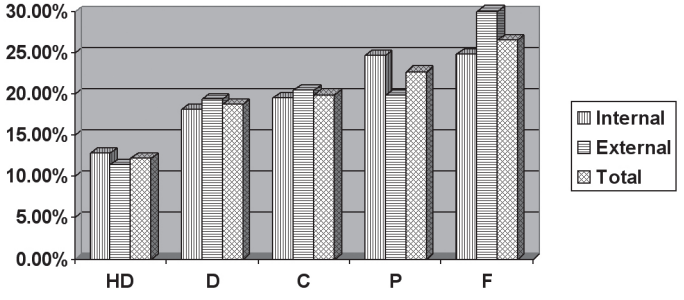


Table IV: Summary of Grades
Universities: Uni 1, Uni2, Uni 3 and Uni 4 combined
Level: 200 level Accounting Subject
Year: 2001

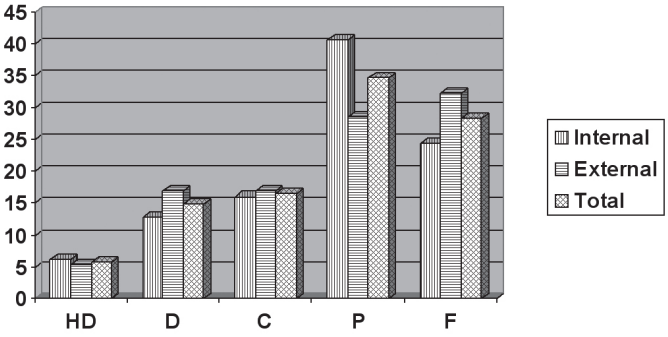
GRADES	INTERNAL		EXTERNAL		TOTAL	
	No	%	*No*	%	*No*	%
High Distinction	29	6.2	24	5.3	53	5.8
Distinction	60	12.8	76	16.9	136	14.8
Credit	75	16.0	76	16.9	151	16.5
Pass	190	40.6	128	28.5	318	34.7
Fail	114	24.4	145	32.3	259	28.2
TOTAL	468		449		917	

Although chi-square test shows there is no significant difference (statistically) in academic performance of internal and external students in their 100 level accounting subjects, Figure 4 indicates that internal students still have a lower failure rate or higher passing rate compared to the external students.

We also performed a chi-square test on the relationship between internal and external teaching modes and grades at 200 level subjects (see Table IV) and found to be statistically significant, χ^2 (4, N = 917) = 17.773, $\rho < .01$, using alpha level of .05.

Figure 5 (below) provides a graphical presentation of the grade performance (in percentages) of the two groups over the three-year period.

Figure 5: Summary of Grades
Universities: Uni 1, Uni2, Uni 3 and Uni 4 combined
Level: 200 level Accounting Subject
Year: 2001



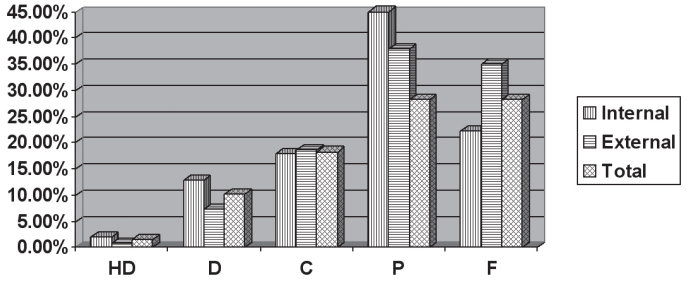
A visual inspection of Figure 5 indicates that internal students have a lower failure rate and higher pass rate than their external counterparts. A chi-square test was then performed on the relationship between internal and external teaching modes and grades at 300 level subject *(see Table V, p. 49-+)* and found to be statistically significant, χ^2 (4, N = 728) = 19.342, $\rho < .01$, using alpha level of .05.

Table V: Summary of Grades
Universities: Uni 1, Uni2, Uni 3 and Uni 4 combined
Level: 300 level Accounting Subject
Year: 2002

GRADES	INTERNAL		EXTERNAL		TOTAL	
	No	%	*No*	%	*No*	%
High Distinction	8	2.0	3	0.9	11	1.5
Distinction	50	12.8	25	7.4	75	10.3
Credit	70	17.9	63	18.7	133	18.3
Pass	176	45.0	128	38.0	304	28.2
Fail	87	22.3	118	35.0	205	28.2
TOTAL	391		337		728	

Figure 6 *(below)* provides a graphical presentation of the grade performance (in percentages) of the two groups over the three-year period.

Figure 6: Summary of Grades
Universities: Uni 1, Uni2, Uni 3 and Uni 4 combined
Level: 300 level Accounting Subject
Year: 2002



A visual inspection of Figure 6 also indicates that internal students still have a lower failure rate and a higher pass rate than their external counterparts.

The above analyses suggest a rejection of the null hypothesis H_2. We conclude that face-to-face teaching does impact on the academic performance of the internal and external accounting undergraduate students in their financial accounting subjects as they proceed from basic level to higher level subjects. As these two groups of students progress to higher level accounting subjects, internal students outperform external students.

Discussion and conclusion

Our analyses suggest that while there is a significant difference in the performance of internal and external students, this is less pronounced in their first year at the university (cf.. Waldmann and De Lange, 1996). It will generally be expected that as the majority of students taking first year accounting courses are likely to be in their first year of university, a period of transition, which requires significant guidance and counselling, internal students should perform better because of the interactivity with teachers and colleagues. Indeed, the face-to-face instruction serves as a medium for reducing uncertainty and a source of confidence building for first year students. Our results however, suggest that this was not the case. A counter-argument is that external students' motivation level is higher when they first enrol for tertiary education. Given that financial accounting courses at the introductory level are not that complicated (compared to intermediate and advanced levels), this higher level of motivation makes up for the lack of interactivity.

Nevertheless, the face-face interaction at the introductory level provides the internal students with a relatively stronger foundation for further studies. With this solid foundation in their university studies, internal students are able to perform even better in subsequent years at the university, which again, is supported by our statistical analyses. As a student remarked:

> …one of your major problems is the uncertainty regarding the course requirements. You are not sure whether your interpretations of course requirements are right or not and you generally feel insecure especially when you are doing it for the first time…Yes, your performance is affected in some sense. You will find that you could always do better.

While this observation may apply to distance education more generally, the respondent's comments are even more important for accounting courses which involve quantitative analyses of scenarios. The differences in foundation between the two groups mirror the performance gap (which remains virtually the same) over the three-year window as observed in the results of the statistical analyses.

Our paper has significant policy implications for university administrators. One of the major considerations will be the differential tuition that is charged to internal and external students. We argue that the tuition should reflect the benefits received by these two groups. While it could be argued that the course materials for external students more than make up for the lack of class room interaction (i.e. the equivalence theory), we believe that the substitution is not exact and should be carefully re-examined. The Residential School concept could be improved through spending more time with external students, particularly in their first year at the university when the uncertainty and insecurity are at their peak. However, the cost implications and student availability are critical factors in this policy issue. Increasing the length of the Residential School would have significant cost implications for universities and may also create motivational problems for academic staff who

are already overstretched in terms of their workloads (Kelly, 1987, p.180). On the other hand, external students may not be able to attend the extended Residential School because of work commitments. As a student respondent noted:

> …I personally like the Res school. It helps a lot but getting time off at work is the main problem. …Your employer may want you to gain the necessary skill and university education but they find it difficult to let you leave work for long periods since this is usually paid leave. I know some students whose employers don't give them any study leave at all. They attend Res school with their annual leave days….

The above observation suggests that there may be a multiplicity of explanatory factors for the differences in performance between the two groups observed. The lack of interactivity is argued in this paper but other demographic factors such as age, marital status, work status and level of commitment are equally important and cannot be downplayed in a study of this nature. However, such factors were not captured in the data set that was made available to us because they were either deemed confidential or not collected by the Heads of School. Future studies may like to incorporate these variables to further our understanding in this area. Finally, this study might also be replicated in other discipline areas (particularly those that emphasize quantitative or numeric skills) to determine whether the conclusions drawn here could be generalized across disciplinary areas. Such an endeavour would certainly extend the current knowledge in this area.

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