

2000

Effective Flexible Delivery in Higher Education: An Australian Case

P. F. Green

The University of Queensland

D. J. Lamb

University of Queensland

Follow this and additional works at: <http://aisel.aisnet.org/ecis2000>

Recommended Citation

Green, P. F. and Lamb, D. J., "Effective Flexible Delivery in Higher Education: An Australian Case" (2000). *ECIS 2000 Proceedings*. 138.

<http://aisel.aisnet.org/ecis2000/138>

This material is brought to you by the European Conference on Information Systems (ECIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ECIS 2000 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Effective Flexible Delivery in Higher Education:

An Australian Case

P. F. Green and D. J. Lamb

Department of Commerce

The University of Queensland

11 Salisbury Rd

Ipswich, Queensland 4305

Abstract - In 1999, the Bachelor of Electronic Commerce degree started at the Ipswich campus of the University of Queensland with an initial intake of approximately 50 students. Subjects were offered to students using technology and flexible delivery methods. This paper details the authors' experiences in building and presenting a cornerstone subject, Introduction to Computer-based Information Systems, in this new degree using flexible delivery techniques. This paper discusses the question, "What is flexible delivery?" Then, it proceeds to reflect on how the concept was operationalised using a combination of e-mail, web-based technologies, and face-to-face contact classes. The proposition is put forward that flexible delivery does not mean contactless delivery, nor does it mean structureless delivery. Finally, the results are presented of several data collection exercises on the relative effectiveness of the presentation methods employed. These results provide preliminary support for the propositions that structure and regular face-to-face contact remain highly valued and effective components of a subject's presentation.

I. INTRODUCTION

Flexible Delivery (FD) and its use for the production and delivery of subjects and whole courses at universities is a topical area currently. At the forefront of such discussions are the questions, "What is flexible delivery? What does it mean?" Real progress in these discussions can be made however when academics who have "grasped the nettle" and operationalised their concept of flexible delivery put their experiences and findings up for examination and further discussion.

Accordingly, the aim of this paper is to present our experiences and findings in operationalising and presenting subjects in flexible delivery mode for the Bachelor of Electronic Commerce degree. This degree began in February, 1999, at the new Ipswich campus of The University of Queensland with an initial student intake of 47. In particular, we will focus on the presentation of one subject during the first semester, 1999, in that degree - CO261 Introduction to Computer-based Information Systems. This subject provides an introduction to knowledge about information systems and basic "hands-on" skills required in dealing with information. It assumes no prior knowledge of computers and is a compulsory subject for students doing the Electronic Commerce degree.

Our motivation for this research came from several sources. First, we wanted to get feedback from the students on what they thought of the subject and how it was presented. As this initial offering of the subject was our first attempt at operationalising flexible delivery, we wanted some basis on which we could improve the subject. Second, we wanted to progress the discussions on flexible delivery by presenting some initial empirical data from one example of the concept. Certainly this implementation has many shortcomings and there are limitations in the research methodology used.

However, we now have some concrete basis on which we can improve the execution of our concept of flexible delivery. Finally, drawing our experiences, findings, and thoughts together into a paper and presenting it to a scholarly forum provides us with an opportunity to obtain a richer set of suggestions for improvements.

This paper progresses in the following manner. First, we ponder the concept of flexible delivery (FD) and we present the various dimensions of flexibility. Next, we present our concept of flexible delivery and how it was operationalised. This discussion will involve a brief comparison of our operationalisation against the dimensions of flexibility presented earlier. Third, we gathered measures of the effectiveness of the subject presentation from three sources: a survey instrument completed by the students, the University of Queensland standard teaching evaluation form (TEVAL) for the subject completed by the students, and a focus group discussion conducted by colleagues from the Department of Management (Ipswich) involving a small subgroup of students who did the subject. In this paper effectiveness is defined as the perceived impact of the delivery method or tool on the student's performance in the subject (see *e.g.*, [6]). The results of these measures are presented and discussed. Finally, we conclude by summarising the important implications from the data and adding to this knowledge with some anecdotal lessons learnt from the second presentation of the subject in semester two, 1999.

II. WHAT IS FLEXIBLE DELIVERY (FD)?

In Australian universities today, academics are being encouraged by management to embrace flexible delivery presentation methods in the design and delivery of their subjects. It would appear that university managers are encouraging such moves because, in their view, in the long run, they will lead to higher quality courses being presented at the same, or lower, overall cost. Moreover, many beneficial by-products will derive from the process. For example, skilled researchers and educators who participate in the construction of flexible delivery subjects will perhaps formalise and document, as part of the materials prepared, intellectual property and techniques about the area that has taken these specialists years to acquire and refine. Such a process will provide the benefits of preparing and maintaining a quality course but also providing some assurance of the quality level irrespective of the personnel who may be involved in presenting the material from time to time into the future.

However, in being encouraged to move towards flexible delivery methods of subject preparation and presentation, there remains much confusion over what constitutes flexible delivery. Distance education through the use of comprehensive written materials, short intensive residential

schools, and, more recently, computer-based education (CBE/CBT) modules has been in place and operational for many years (e.g., [3], [8]). Over the intervening time, much research has been done on the evaluation of such educational techniques and many improvements have been made to our understanding of the effectiveness of such methods (e.g., [12], [9]).

More recently, open learning initiatives involving such techniques as audiographics conferencing and presentation of materials via broadcasts using the Australian Broadcasting Commission (ABC) television channel have received increasing popularity and evaluation (e.g., [11], [5], [1]). The current popular conception of flexible delivery appears to be “putting everything from individual courses (subjects) to entire degree programs in cyberspace” ([7], p. 25). By contrast, our concept of flexible delivery lies along the continuum between traditional lecture/tutorial in-class methods and distance/open learning methods. More specifically, our conceptualisation of flexible delivery involves a mix of learning methods that combines the benefits of distance/open learning – flexibility in access, in time, and in place [1] – with the benefits of traditional methods – regular opportunity for face-to-face contact and discussion/resolution of problems. In this way, it was similar to the approach to flexible learning examined by [2] – the ‘learners’ were to be made more responsible for their own learning and have more control over it. In addition, the learning materials provided would be supplemented by other resources including ‘facilitators’ who were to be regarded by the ‘learners’ as another resource rather than an impartor of knowledge (teacher).

Table I provides the dimensions of flexibility (of learning) suggested by [4]. This table presents a description of the various dimensions that can be used to define flexible delivery (FD).

TABLE I.
DIMENSIONS OF FLEXIBILITY (OF LEARNING)

Dimension	Less Flexible	More Flexible
Access	Fixed time and place	Fewer restrictions
Course Structure	All compulsory	Alternative choices
Course Content	Teacher decides	Learning contracts
Delivery Medium	Face-to-face	Print
Delivery Mix	Use of one (1) medium	Resource-based delivery
Teaching and Learning Methods	Lecture/tutorial	Self-directed
Interaction	Passive listening	High interaction
Use of the WWW	Transmit content	Interact and communicate
Assessment	Teacher directed	Negotiated

We do not imply in Table I that “more flexible” is better in all cases. Rather, Table I provides a framework by which subject developers can review the various dimensions of flexibility and then position their development at the point on each dimension appropriate to their circumstances. These circumstances will be unique to each subject development and they will be determined by such factors as the characteristics of the developer, the content domain, and the audience to whom the subject will be presented.

III. THE SPECIFIC CASE

CO261 – Introduction to Computer-based Information Systems – is a first-level introduction to hardware, software, data communications, networks, the development and different types of information systems in business, and the Internet. By way of “hands-on” component, the subject

introduced students to the use of e-mail, browsing and searching the Internet, and the use of spreadsheets (Excel) and databases (Access) in business.

A subject development team developed the subject in second semester, 1998, for presentation in first semester, 1999, at the new Ipswich campus of the University of Queensland. The team consisted of two content experts, an instructional designer, and support staff from the Learning Resources and Development Unit (LRDU) of the University of Queensland.

The team developed a study guide that comprehensively covered the topic areas of the subject. Each section of the study guide led the student through a series of readings, preliminary activities, written activities, practical activities, and Internet exercises. The study guide referred students to reading and exercise material contained in three textbooks and various online resources. The online resources consisted of a general website (the Companion website) and a WebCT set of materials to support one of the textbooks. Both these online resources contained such materials as lecture notes and quizzes for each chapter of the textbook, self-assessment tests, and real-world short cases. Also, a CD-ROM prepared by CBT Systems covering the various packages of Microsoft’s Office 97 was referred to in the Study Guide particularly when the spreadsheet and database topics were being covered. This CD-ROM was part of the text package obtained by students.

The study guide and WebCT textbook-based materials (purchased from the textbook suppliers) were loaded onto the subject site (CO261) on the WebCT WWW server at the Ipswich campus. (WebCT is the course technology product used by the University of Queensland to present materials to students over the World Wide Web. WebCT was acquired in 1999 by Universal Learning Technologies (ULT), Massachusetts. WebCT has many additional features including facilities to accumulate and record students’ marks on various assessment items, bulletin board, email, homepage for each student, chat rooms, and secured access to materials through user-id and password protection.) Because this semester represented the first offering of the subject in this new flexible delivery format and there were some concerns with regard to the readiness of the facilities at Ipswich, students were also provided with a copy of the study guide in printed form.

To assist students in structuring their progress through the materials during the semester, a weekly two-hour seminar/tutorial/laboratory class was offered to the students. Numbers in these face-to-face classes were limited to 15-17 students. To support these classes, a series of weekly task sheets was devised. Each task sheet suggested to students what section of the reading they should cover this week, what were the important topics to be covered, various of the activities from the study guide that might be attempted prior to, and in preparation for, the next class, and activities that were going to be performed during the class session. The weekly face-to-face classes were supported by a series of five (5) two-hour lectures presented throughout the semester. These lectures were presented at critical points throughout the semester. At each of these points they were able to introduce, and provide a summary overview of, major topics that were going to be reviewed by the students over the following weeks. Moreover, the first lecture introduced students to the objectives, the structure, and the assessment of the subject. The last lecture summarised the work throughout the semester and it gave students information regarding the structure and

format of the final examination. Finally, staff were available in their offices at set times each week for student consultation. (Interestingly, staff found that virtually no use was made of this consultation facility by students throughout the semester given the other contact opportunities (both face-to-face and electronic) available to them.)

Intensive communication was maintained with the students outside of face-to-face contact opportunities using general student e-mail and the bulletin board facilities within WebCT.

The assessment of the subject was planned to attempt to gauge students' progress in acquiring the skills and knowledge presented throughout the semester. Moreover, incentive was included in the assessment structure for students to work progressively throughout the semester rather than leaving everything to the end of semester. Accordingly, Table II summarises the assessment structure used in the subject.

TABLE II.
ASSESSMENT STRUCTURE.

Item	Percentage of Assessment
Assignment 1 – due week 8 – covered Internet browsing, Word, and Excel.	20
Assignment 2 – due week 15 (last week) – covered Excel, macros, Access and some Visual Basic.	20
Progressive class preparation and participation.	10
Final examination	50

A novel approach was trialed with the assignments. Students were given the specification of the assignment tasks and asked to present their attempts at these tasks to their seminar leader/facilitator by their class time in the due week. Students could submit their attempts either on paper or by e-mail. (Interestingly, as printing was provided “free” to students in computer laboratories at Ipswich in semester one, virtually every student chose to submit their assignment attempt in hardcopy format.)

At the normal lecture time in the due week also, students were asked to sit a test based on the material and skills covered in the assignment. The test was paper-based and it consisted of a series of multiple-choice and short-answer questions. If students submitted a complete assignment (*i.e.*, they submitted a conscientious attempt at each required task), then the mark they achieved on the test was their percentage out of 20 for the assignment. However, for each assignment task not conscientiously attempted, the student's mark on the test was discounted proportionately.

The progressive class preparation and participation was assessed by the individual seminar leader/facilitator. Students could obtain one percent per session, up to a maximum of ten percent. There was a maximum of thirteen (13) opportunities throughout the semester for students to obtain their ten percent.

The final examination was a two-hour centrally timetabled written paper. It consisted of 60 multiple-choice questions and four short-answer questions. There was no examination of the practical materials that had been assessed throughout the semester. The material in the final examination consisted of the “theory” covered by the study guide, textbook, and various online sources, which was reviewed during the seminar classes throughout the semester.

In an attempt at self-appraisal, Table III provides an assessment of this particular operationalisation of flexible delivery against the dimensions of flexibility introduced

earlier. For each dimension, we use the ratings less flexible, flexible, and more flexible to indicate our assessment.

TABLE III.
ASSESSMENT OF FLEXIBILITY

Dimension	Rating
Access	More flexible
Course Structure	Less flexible
Course Content	Less flexible
Delivery Medium	More flexible
Delivery Mix	More flexible
Teaching and Learning Methods	Flexible
Interaction	More flexible
Use of the WWW	More flexible
Assessment	Less flexible

IV. ASSESSMENT OF THE EFFECTIVENESS OF THE OPERATIONALISATION OF FLEXIBLE DELIVERY IN THIS SUBJECT

Measures of the effectiveness of the flexible delivery methods used in this subject were obtained from three sources:

1. A short, specifically designed survey administered to students.
2. The standard subject teaching evaluation (TEVAL) survey form.
3. A focus group interview conducted using some of the students who did the subject.

A. Source 1

A survey instrument was developed to gather, *inter alia*, demographic information on students doing the Bachelor of Electronic Commerce and their perceptions of the effectiveness of the various flexible delivery component methods employed in the subject. (A copy of the instrument is provided in the Appendix to this paper.) Students were asked to assess different methods of delivery/learning under two criteria essentially. The first criterion was whether the method “had a **large, positive impact** on my effectiveness in successfully completing this subject”. The second criterion was whether the method was “an **important and valuable aid** to me in the performance of my study in this subject”. These two measures of effectiveness were derived from a validated survey instrument developed and used by [6]. These two researchers were principally concerned with measuring the effectiveness of computer-based systems in helping users in organisations accomplish tasks.

The component flexible delivery methods assessed were:

- E-mail;
- On-line study guide;
- On-line bulletin board;
- Prentice-Hall cis.edu WebCT materials; and the
- Prentice-Hall companion web site.
- Face-to-face weekly seminars.

The students assessed the impact of these methods on a five-point scale, where:

- 1 = strongly disagree;
- 2 = disagree;
- 3 = neutral;
- 4 = agree; and
- 5 = strongly agree.

Table IV presents the average scores (and their standard deviations) for each of the effectiveness measures for each of the flexible delivery methods surveyed. The methods are

categorised into two groups - electronic/online and face-to-face.

The individual scores show clearly that in the students' perceptions each method was effective in helping them complete the subject successfully. However, for the companion website and bulletin board methods, there was enough variation to indicate uncertainty on those responses. Clearly, students were in strongest agreement on the effectiveness of the face-to-face classes.

TABLE IV.
AVERAGE SCORES (AND STANDARD DEVIATIONS) ON STUDENTS' ASSESSMENT OF THE IMPACT OF DIFFERENT FLEXIBLE DELIVERY METHODS ON THEIR ABILITY TO SUCCESSFULLY COMPLETE CO261.

Method	Method had a large, positive impact	Method was an important and valuable aid
Electronic/online:		
E-mail	3.9 (0.8)	4.0 (0.8)
On-line study guide	3.8 (0.7)	4.0 (0.8)
On-line bulletin board	3.7 (0.9)	3.8 (0.8)
Prentice-Hall cis.edu WebCT materials	3.7 (0.7)	3.7 (0.9)
Prentice-Hall companion web site	3.4 (0.9)	3.4 (0.9)
Average of electronic/online methods	3.7	3.8
Face-to-face weekly seminars	4.5 (0.7)	4.5 (0.6)
t-statistics	5.81	6.50
Significance level (two-tailed)	<0.1%	<0.1%
n	33	33

Two sets of comparisons were performed. First, the average of the responses for the electronic/online methods was compared with that for the face-to-face seminars. Despite there being only 33 useable responses, students exhibited a stronger belief that the face-to-face method had a large, positive impact on their effectiveness in completing the subject, compared to the electronic/online methods. The average score for electronic/online methods on this criterion was 3.7, compared to 4.5 for face-to-face seminars.

In addition, students showed a stronger belief that face-to-face seminars were an important and valuable aid in the performance of their study, compared to electronic/online methods. The average score for electronic/online methods on this criterion was 3.8, compared to 4.5 for face-to-face seminars. These results are statistically significant at the 0.001 level.

Second, each individual electronic/online method was compared with the face-to-face method on both effectiveness criteria. The same results were obtained. For example, the average score for e-mail having a large, positive impact on students successfully completing the subject was 3.9, which was a significant difference away from the score of 4.5 for face-to-face seminars.

Overall Result - Students have a stronger belief in face-to-face seminars than electronic/online flexible delivery methods.

B. Source 2

Sources 2 and 3 did not look at individual components of the flexible delivery operationalisation. Rather, they simply attempted to obtain a measure of the students' perceptions of the effectiveness of the **combination** of flexible delivery components used.

Source 2 consisted of targeted questions that were administered to students through the standard teaching evaluation (TEVAL) form of the University of Queensland for the subject at the end of the semester. Table V summarises these items. The items are measured on a six-point scale.

0 = No answer or N/A
1 = Strongly Disagree
2 = Disagree
3 = Uncertain
4 = Agree
5 = Strongly Agree

TABLE V.
TEVAL SUBJECT EFFECTIVENESS MEASURES.

Item	n	Mean	Std. Dev.
Emphasised thinking rather than just memorising	26	4.5	0.63
Helped me to improve my learning skills	24	4.3	0.79
I learned to apply principles from this class in new situations.	26	4.4	0.63
Study guides assisted my learning	25	4.6	0.70
Time is used effectively in tutorials in this subject	26	4.4	0.56
Overall, how would you rate this subject? (7 point scale)	26	5.9	0.85

C. Source 3

As part of their evaluative procedures in semester one, the Department of Management (Ipswich) conducted a series of focus group sessions with their students to obtain their perceptions of the subjects that the students did during the semester. A number of the students had participated in CO261 as an elective subject. The focus group methodology provided a contrast, and a qualitative alternative to the quantitative effectiveness measures employed on Sources 1 and 2. A summary of the results of the focus group discussions regarding CO261 is extracted below.

CO261 Intro to Computer-Based Information Systems: (four students enrolled in this subject) *Positives: one of the best presented subjects overall; enjoyable; step-by-step - basic; variety (tutes, lectures, Internet access, hard copies). Even someone who had been at uni for years said its one of the best subjects because of the way the lecturer presents it.*

V. WHAT HAVE WE LEARNED?

This paper has explored the question, "What is Flexible Delivery?". It has provided a review of various learning systems ranging from distance learning, to open learning, and finally arriving at flexible delivery. It has provided a range of dimensions of flexibility that could prove useful in determining what mix of components might be appropriate for the design and implementation of a particular subject in so-called flexible delivery mode.

The paper went on to describe the design and implementation of one such subject in the new Bachelor of Electronic Commerce program - CO261 - Introduction to Computer-based Information Systems. It showed how the design and delivery of the subject mapped into the various dimensions of flexibility. "More flexible" on every dimension is not necessarily the goal. Rather, a mix of flexibilities across the components would appear to be more appropriate. However, such a mix decision is driven by the

characteristics of the developer/facilitator, the material being presented, and the audience to which it is being presented.

Using various quantitative and qualitative sources, data on the effectiveness of this operationalisation of the flexible delivery/learning concept was gathered and presented.

From the evidence obtained then, it would appear that the mix of components used in the design and presentation of CO261 was appropriate for the type of material and the characteristics of the audience to which it was presented. Moreover, it would appear that there is reasonable support for our conceptualisation and operationalisation of the flexible delivery concept. Furthermore, it is apparent from the data analysis and feedback received that structure and face-to-face contact remain important components of any successful flexible delivery mix. This last result is reinforced by the results of previous studies that have looked at the comparison of learning strategies between traditional and open learning systems (e.g., [10]) and more recently, research into the efficacy of different types of distance-learning technology (Institute of Higher Education Policy report, quoted in [7]).

Anecdotally, from presenting this subject in flexible delivery mode in second semester 1999 to a larger number of students (nearly 200) across three campuses of the University of Queensland (Gatton, Ipswich, and St Lucia), an additional insight has been gained. In this subsequent presentation of the material, a larger number of facilitators (seven) has been required. The range in quality of the facilitation skills of the facilitators appears to have reinforced the finding from the first semester of the importance of the face-to-face sessions in the effectiveness of the flexible delivery mix used.

ACKNOWLEDGMENT

The authors would like to gratefully acknowledge the helpful comments they received from Prof. Ron Weber and Associate Professor Colin Ferguson from the University of Queensland. Moreover, Mr Jason Hall provided invaluable research assistance to the authors to allow the completion of this paper.

REFERENCES

[1] E. Atkinson, I. Conboy, A. Dodds, C. McInnis, and A. Atkinson, "Evaluation of the Open Learning Initiative: Interim Report March 1995", Centre for the Study of Higher Education, University of Melbourne, Parkville, 1995.

[2] J. Baron, "A Personal Reflection of an Evaluation of a Flexible Learning System" unpublished Masters thesis, University of South Australia, Adelaide, 1995.

[3] D.W. Birchall and R. Bennett, "Through the open door – Today's Revolution in open access and distance learning: Distance learning in management education: A case example", *Journal of European Industrial Training*, vol. 10, no. 6, pp. 38-47, 1986.

[4] A. Brown, "Dimensions of Flexibility", presented at the University of Queensland (Ipswich) Program Director's Retreat, Ipswich, 2 July 1999.

[5] M.J. Cooper, "Guidelines to producers of text-based open learning materials", *Training and Management Development Methods*, vol. 9, no. 1, pp. 7.01-7.11, 1995.

[6] D.L. Goodhue and R.L. Thompson, "Task-Technology Fit and Individual Performance", *MIS Quarterly*, vol. 19, no. 2, pp. 213-236, 1995.

[7] W. Grossman, "Cyber view: On-line U", *Scientific American*, p. 25, July 1999.

[8] M. Hawes, "Distance Learning – Getting Started", *Journal of European Industrial Training*, vol. 11, no. 3, pp. 21-25, 1987.

[9] T.D. Knott, "Evaluating distance learning in public education", *Journal of Instruction Delivery Systems*, vol. 7, no. 3, pp. 31-35, 1993.

[10] U.S. Koymen, "Comparison of learning and study strategies of traditional and open-learning system students in Turkey", *Distance Education*, vol. 13, no. 1, pp. 108-117, 1992.

[11] C. Lawson, "Managing change by promoting open learning", In *Access through Open Learning with a Major Focus on Managing the Change to Open Learning*, ed. A. Ellis and B. Hansen, University of New England:Ballina, pp. 112-120, 1993.

[12] E.D. Wagner, "Evaluating distance learning projects: An approach for cross-project comparisons", *Proceedings of 15th Annual Meeting of the Association for Educational Communications and Technology*, New Orleans, pp. 13-17, Jan. 1993.

APPENDIX

Bachelor of Electronic Commerce 1999

Student Survey

Name
.....

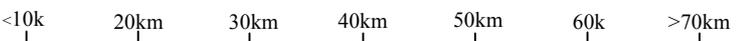
Home Suburb/Town
.....

School last attended and year
.....

Other qualifications (if any)
.....

Employment
.....

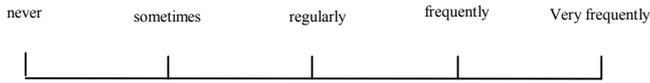
Where did you hear about the Bachelor of Electronic Commerce?
.....

Return distance travelled each day?


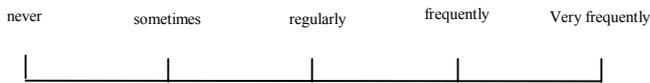
Mode of travel? Own or friend's Car
 Train
 Bus
 Other

Please specify.....

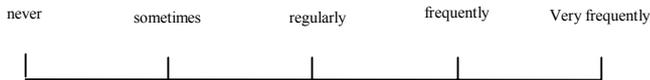
How often have you used the Library at Ipswich? (Please circle answer)



How often have you used the Library at St Lucia? (Please circle answer)



How often have you used other Libraries?



Do you have access to a computer at home? (Please circle answer)

Yes No

Do you have access to the Internet from home? (Please circle answer)

Yes No

Do you access the Internet from elsewhere?

Yes No

How frequently do you "surf the net"? (hours per week)



How frequently do you access the UQ Ipswich subject sites from home or other off-campus locations? (hours per week)



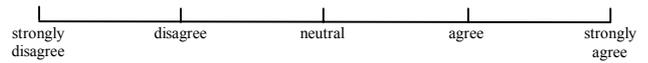
Have you accessed SI-Net to:

Enrol	Yes	No
Check enrolment	Yes	No
Check class timetable	Yes	No
Check exam timetable	Yes	No

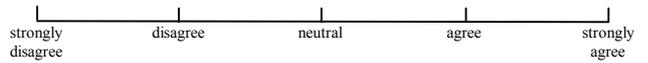
Will you access SI-Net to get your subject results?

Yes No

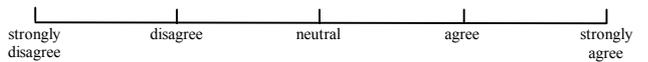
E-mail had a large, positive impact on my effectiveness in successfully completing this subject



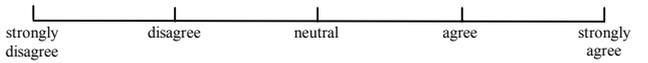
E-mail is an important and valuable aid to me in the performance of my study in this subject



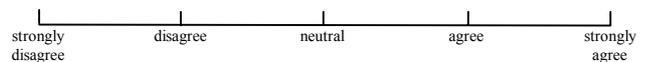
Online study guide in WebCT had a large, positive impact on my effectiveness in successfully completing this subject



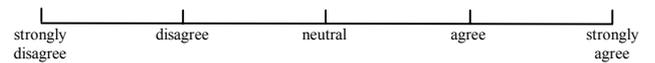
Online study guide in WebCT is an important and valuable aid to me in the performance of my study in this subject



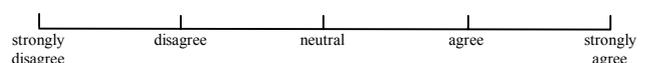
The bulletin board in WebCT had a large, positive impact on my effectiveness in successfully completing this subject



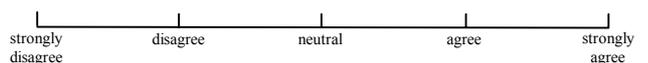
The bulletin board in WebCT is an important and valuable aid to me in the performance of my study in this subject



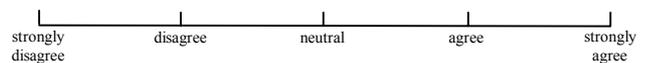
The Prentice- Hall cis.edu WebCT materials had a large, positive impact on my effectiveness in successfully completing this subject



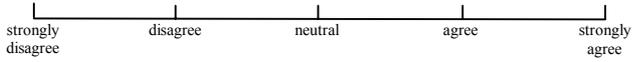
The Prentice Hall cis.edu WebCT material is an important and valuable aid to me in the performance of my study in this subject



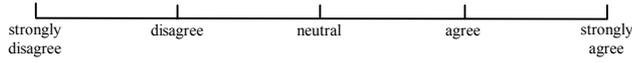
The Prentice-Hall companion website (<http://www.prentall.com/bookbind/pubbooks/long2/>) had a large, positive impact on my effectiveness in successfully completing this subject



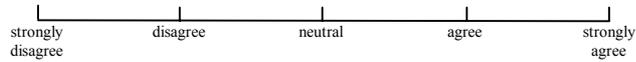
The Prentice-Hall companion website (<http://www.prentall.com/bookbind/pubbooks/long2/>) is an important and valuable aid to me in the performance of my study in this subject



The face-to-face weekly tutorials had a large, positive impact on my effectiveness in successfully completing this subject



The face-to-face weekly tutorials were an important and valuable aid to me in the performance of my study in this subject



END OF SURVEY

THANK YOU FOR YOUR PARTICIPATION.