

## SUPPORTING THE DISTANCE LEARNING OF THE INTRODUCTORY BUSINESS STATISTICS COURSE BY TELEPHONE AND E-MAIL.

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*The Introductory Business Statistics is a compulsory first year paper for Business Studies students at Massey. For extramural students, the University offers a mailing list known as the Mass-E-Mail for course members to discuss their course issues via emails. Also, a telephone help line that has been designated to assist the students, known as the Help Desk, is also provided. This article examines the use of these support methods.*

*A survey was conducted for the first time at three Regional Courses recently and the effects of these teaching support methods are evaluated based on the responses from the students. We found that while there is a definite advantage to some students, the overall effect is not overwhelming in view of the time input by staff. It is hoped that with further research and improvement, these support schemes will benefit the students substantially.*

### INTRODUCTION

Massey University is a “dual mode” institution offering both distance education and conventional, campus-based teaching. The University’s distance education programme, known as the extramural studies programme, has a long history which began in 1960. From a few hundred enrolments initially, mostly among teachers, the extramural roll has risen steadily to its current level of around 17,000 students, most of whom are part-time, and come from a wide range of professions and situations. Over 900 papers are offered towards a range of degrees, diplomas and certificates. There are three first-year statistics courses available extramurally, including 61.110 Introductory Business Statistics which is offered twice a year. In recent years this course has a combined extramural roll (two offerings per year) at about 700.

Extramural courses are identical in entry standards, curriculum, assessment and credit to their campus-based (or “internal”) counterparts. The maintenance of parity of standards between the two modes is regarded as extremely important, and no distinction is made on students’ academic transcripts as to their mode of study.

Extramural students live throughout New Zealand, some in urban areas and others in more remote regions. They therefore have less access to staff and university facilities, so the university endeavours to provide appropriate assistance for these students.

Another distinctive profile of extramural students in a given course is that they are generally older students, usually engaged in full-time or part-time work, and with expectations of achieving success in their study. Strong motivation coupled with hard work often compensates other inherent disadvantage and hence they often perform better

than their internal counterparts. Also, because they are paying a higher price (though not a higher fee), they usually interact better and demand a lot more from staff.

About 155 from a class in excess of 330 students enrolled in the course 61.110 Introductory Business Statistics have attended the regional course in three locations. Findings based on the results of a survey questionnaire completed by course participants will be presented below concerning the use of these platforms in the delivery of the paper. For reference, the questionnaire is also attached as an appendix at the end of this article.

## COURSE ORGANISATION

61.110 Introductory Business Statistics is one of the compulsory courses for the Business Studies Degree. Typically, a student in an extramural course is given course materials which have study guide(s) and a course organization handbook. Often a student is required to buy a prescribed text book except in the cases when these notes are self-contained study materials equivalent to a text. For this paper, the text by Moore and McCabe "Introduction to the Practice of Statistics" is prescribed as well a study guide is provided. The calendar prescription of the course is:

*"The use of exploratory data analysis to understand quantitative problems arising in business. The use of the normal distribution as an approximation to common data patterns. Estimation of means and proportions. Sampling, index numbers and time series. Regression and correlation. All topics will be presented as practical tools for tackling business problems."*

For most extramural papers, students have an option to attend a campus course or a regional course if it is available. These courses provide an opportunity to interact with other students in the course and receive face-to-face tuition from the paper coordinator.

For this Summer Semester, about 155 students have opted to attend the Regional Course (in three locations). Apart from lectures and tutorials, the students also sat a test which will form part of the internal assessment of the course.

## ASSISTANCE TO STUDENTS

Many students are enrolled for this course because it is compulsory, not because they are interested in statistics or are well-prepared for the course. Because of this, we are seeking various ways to assist them to overcome the problems of lack of interest and the 'under-preparedness' for the course.

Traditionally, students and teaching staff correspond with each other through postal mails. There is a waiting time on the side of the students before they get a reply from the course controller. Also, it is difficult to interact via postal mails. The course duration was shortened since Massey adopted the semester system two years ago so that

the postal mail becomes less effective. The students of course may phone their teacher(s) at his/her office telephone number but their toll calls may be wasted if the staff concerned is not around at the time.

Because of a large class, we are able to devise the following two schemes to assist the students: (i) A telephone help desk serviced by a tutor during the preset time periods was established since 1995. Students may phone in at these times to talk to the tutors and the problem of 'hit or miss' can be avoided. It is hoped that this facility may compensate the lack of face-to-face contact with the lecturers and tutors. (ii) From this semester, an email listing is created to facilitate discussions among the participating students. This is to provide some form of human interaction which is often missed by the extramural students at large. Further, we also provide a two day voluntary Regional Course in three locations.

*Telephone help desk.* The course has a special phone line for the extramural students to phone in during the preset period of time of the week throughout the semester. Currently 4-6 hours on either side of a weekend have been set aside. A teaching staff member of the course will answer any query at these times. Callers outside these periods will hear a tape-recorded message about the correct times for help desk. We do not allow the option of returning the calls which would involve much staff time and cost.

Despite much effort to minimise the use of formulae in our course, certain equations of formulae are just unavoidable. Explanations on the formulae could prove to be rather daunting. So a newer technology such as Internet may be used to alleviate the problem.

*The Web.* Many internationally recognised educational institutions use so-called computer-mediated communications as part of their distance education courses. A web discussion forum known as Mass-E-Web is available at Massey although our course has not yet involved a full-scale web or internet teaching; we only apply some aspects of its function. To put it simply, web teaching uses the Internet to deliver a new mode of teaching which uses aspects of both internal and extramural teaching practice. The easiest way to think of web teaching is a means to increase collaboration between students and improve communication between the teaching staff and their students. The Mass-E-Web also allows 'real-time' discussion that is similar to a 'face-to-face' discussion.

*Mail list.* At Massey, students in some extramural courses are encouraged to use the e-mail discussion forum (known as Mass-E-Mail) which is based on the email section of the Mass-E-Web system for communication. They now need to access the Internet through a local or nationwide Internet provider.

An email list is created for the class and students can join the list by sending an email to [majordomo@massey.ac.nz](mailto:majordomo@massey.ac.nz) containing a coded message to subscribe to the paper. The email list is formally described as follows:

*“Mailing lists are primarily used at Massey to allow interaction between extramural students. You should think of a mailing list as a discussion or tutorial style group. In it you can ask questions, share understanding or simply take note of the discussion occurring around you”.*

The Mass-E-Mail discussion forum allows the students to communicate with other students as well as a convenient way to contact the tutors. As a result, students would feel less isolated. The primary role of the paper co-ordinator is to facilitate discussion although s/he may choose to actively participate.

From a tutor's perspective, an advantage of teaching online over using the phone is that we do not have to be put on spot with difficult questions - we can take time to construct an answer when we have had time to reflect. If Mass-E-Web were used, one could create a page of questions and answers on the Internet to be available to all students. In this way the course tutor can avoid answering the same questions over and over again.

#### Issues concerning email teaching

- Will some students be disadvantaged if they don't have access to the email list?
- Does email teaching create a lot of extra work given that the course co-ordinators' time and resources are already stretched?
- Any statistics course typically involves mathematical formulae. It is not possible to type these formulae through internet. However, it is possible to send a document as an attachment through Eudora or Pegasus Mail, etc.

#### SURVEY RESULTS

*Mass-e-mail usage.* Our survey shows that over 80% have either owned or access to computers. In this cohort, 45% do not have modems and the other 55% do. Among those who have modems (implicitly having access to emails), less than 30% subscribe to the mail list, the rest do not. If a probability 'tree diagram' is used, we would expect 13% of the class to subscribe to the mail list. Indeed, this is confirmed by the data that 16 out of 128 who answered the questionnaire have subscribed to the mail list. Among those who do own computers, only 16% use the mail list and half of the rest did not have modems and the other half did not get around to join or are being unaware of the availability of the facility.

#### The mail list users' profiles

- ◇ 2/3 are passive and only 1/3 contribute. (We need to improve the contribution rate).
- ◇ (i) ask questions on how to do particular tasks, e.g., regression calculations,
- (ii) seek clarification of assignment questions and

- ◇ (iii) bring a human 'touch' including how others are handling the course.
- ◇ Most are positive about the mail list although some who wish more staff participation.

#### Mail list non-subscribers' profiles

- ◇ About 1/4 of nonsubscribers do not have computers and 37% have computers but no modems and another 37% have modems but still do not subscribe.
- ◇ Those who do not subscribe to the mailing list also tend not to use the Help Desk.

#### Help desk usage

Slightly over 1/4 (about 27%) of those who answered the questionnaire use Help Desk.

#### Help desk users' profiles

- ◇ Average use per student is twice during the first 3/4 of the course.
- ◇ Most important reasons for using the Help Desk are:
  - (i) ask questions on how to do particular tasks,
  - (ii) ask about course administration,
  - (iii) seek clarification of assignment questions, and
  - (iv) very often, they seek confirmation of the proposed answers.
- ◇ The general impression of the Help Desk facility is 'adequate'/'very good'. A small minority express their frustration arising from inaccessibility and unsuitability of the preset times slots. Perhaps the course controller should now make plan to extend the preset times, especially during those weeks prior to the assignment due dates. This should alleviate the 'bunching' problem and enhance the accessibility to the help desk.

#### Help desk nonusers' profiles

- ◇ For the non-users of the Help Desk, three main reasons for not using are identified as:
  - (i) rather work things out themselves,
  - (ii) not organised to ask questions, and
  - (iii) did not know what to ask or felt their questions are too simple to ask.

A few thought that Help Desk times unsuitable. Reason (i) is by far the clear majority. Very few indicate cost of toll calls is a factor which is surprising.

## CONCLUSIONS

From the survey, we find the mail list was rarely (only about 12%) used by the students although the majority of them own or have access to a computer. This is disappointing as we were hoping that an email list will initially provide an enhanced way for students to interact more with peers as well as the paper coordinator and will in the future perhaps be used for some group assignments or projects. Perhaps the paper

coordinator in future will ask the students for their email address and then subscribe them to the lists. This has been found by other teachers to be the best way to ensure participation. If we let them subscribe themselves they sometimes never quite get around to it. Staff in future may need to make more contribution to the list rather than being passive. The University encourages staff to conduct surveys so they can make informed decisions about whether they wish to use email, web, cd-rom or other forms of computer based teaching.

The Help Desk was used by slightly more students (over 1/4) and they have more focused reasons for using Help Desk, perhaps because of costs involved. The log of calls indicates an upward shift of use as the semester progresses on. It seems that audio contact is still important to many students. Apart from extending Help Desk hours, we need to search for other means to improve our service.

Does modern technology really help our first-year statistics teaching? We observe that the conventional written queries are now almost non-existent whereas the use of telephones for queries has increased. Though our survey result on the use of the email list has not been encouraging, we still believe that an email or web discussion group would help a student do well in the course in three ways:

- 1) Provide a means of increased interaction with peers, which research has shown can have a positive impact on learning.
- 2) Regular participation in the discussion group helps increase motivation for finishing readings in a timely manner (otherwise one cannot fully participate in discussions).
- 3) Increased exposure to the material should increase retention.

## APPENDIX

The survey is in two sections with two parts in each. The first section relates to Mass-E-Mail and the second section to the Help Desk. To save space, only the subscriber part of each section is given below:

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**MASS-e-mail - SUBSCRIBER PART (circle your responses please)**

- (a) I am subscribed (i) *at home* (ii) *at work* (iii) *at both* (iv) *elsewhere* (eg. via friend).
- (b) My use of MASS -e-mail is as (i) *a contributor* (ii) *passive browser* (iii) *both*.
- (c) Have you directly contacted other contributor(s) apart from the mailing? *Yes / No*
- (d) From your observations please describe the impressions of the use made of the MASS-e-mail mailing group. There is a list of some possibilities below and space for you to add your own. Answer each of (1) -(9).
  - (1) Questions on how to do particular tasks (eg. regression calculations). *Yes/No*
  - (2) Ask about the course administration, paper details, etc (eg. exam date). *Yes/No*

- (3) Seek clarification of assignment questions. *Yes/No*
  - (4) Definitions of terms (eg. what is a “legend”?) *Yes/No*
  - (5) To share understandings of concepts (what is “variability”?) *Yes/No*
  - (6) Find out how others are handling the paper. *Yes/No*
  - (7) Ask about “small” things *Yes/No*
  - (8) Brings a more human aspect to the paper *Yes/No*
  - (9) Other (please state) \_\_\_\_\_
- (e) From the nine items above list the **3** most important (use the number label):  
*most important* \_\_\_\_\_ *second most important* \_\_\_\_\_ *third most important* \_\_\_\_\_
- (f) Comment on changes, enhancements, expectations for this mailing list that may improve its usefulness to other student users.
- (g) Would you have preferred more input from the list controller? *Yes/No*  
Comment (if possible) \_\_\_\_\_
- (h) Degree of satisfaction with MASS-e-mail for this paper. (Circle one only)  
*(i) minimal (ii) disappointing (iii) neutral (iv) positive (v) excellent.*  
Comment \_\_\_\_\_

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HELP DESK - USER PART (**Circle** your responses please)

- (a) How many times have you contacted the Help Desk? \_\_\_\_\_
  - (b) How many days have you not made contact when you wanted to? \_\_\_\_\_
  - (c) For which of the following reasons have you used the Help Desk.  
Answer each of (1) - (9) ( Same as those given for Mass-E-Mail .
  - (d) From the nine items above list the **3** most important to you. (use the number label)  
most important \_\_\_\_\_ second most important \_\_\_\_\_ third most important \_\_\_\_\_
  - (e) Think of the time(s) you used Help Desk for a **non-administrative** query. Describe the nature of question(s)(circle one only) (i) *clarifying an assignment* (ii) *question* (iii) *confirmation of a proposed answer* (iv) *understanding a term used a statistics concept*
  - (f) Outline briefly the context of the question(s) in your own words. (eg *How to draw a median line. or The difference between influential points and outliers.*)
  - (g) Was the response you received to your question helpful to your understanding?  
Please comment \_\_\_\_\_
- Please indicate your impression of the Help Desk facility in this paper.(Circle one only)  
*(i) very poor (ii) inadequate (iii) neutral (iv) adequate (v) very good.*